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Transformation from electronic government to smart government

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Introduction

In our time, technological developments affect people's lives in all areas, especially in industry and organizational systems. States and forms of government are also significantly affected by these technological developments, and the state works hard to keep pace with the times. The growth rate of broadband internet has led citizens and businesses to seek faster, more efficient, and effective ways for governments to meet their demands for greater transparency and inclusion in public activities. There are requirements for the transition from e-government to digital and intelligent systems, increasing the accessibility of open government data, and using data as a strategic asset in policy development. Digital technologies increase access to information, public sector information, and public participation. Strategies to increase opportunities for more efficient use of data and information and communication technologies (ICT) are planned together. This new direction in digital technologies and the increasing use of states point to the transition of values from e-government to digital systems, from e-government to the intelligent state.

E-government, like the system in which technology is used, is in the throes of this change. With a new perception, e-government is transitioning to an intelligent state (a-state) with forms and conceptual transformation digitalization. The new approaches are one step ahead of e-government in being open to the public only online. With the use of new technologies and applications, intelligent technologies and applications for possible new processes and forms of participation, "big data", "cloud", "artificial intelligence", "Internet of Things", "data mining", "digital government" are discussed today. (Guenduez et al., 2017: 3). Therefore, the importance of the new government and governance structures beyond the previous e-government initiatives is undeniable. In this context, research has begun to transform general operations and public services and improve relations with citizens and the business community.

The central claim of the research prepared from this point of view is the transition of the digital state from the concept of e-government to the idea of government. This hypothesis has been tried to support using secondary sources on the subject. Relevant literature was sought in the study using the descriptive analysis method, and the process of transition from e-government to e-government was analyzed. The study, written in this way, examines the development of e-government models, political aspects, social aspects, economic aspects and technological aspects

and applications and solutions that affect the governance models of countries in a rapidly evolving and changing technology. In addition, the impact of e-government on the developing structures towards the state in the new period was assessed. The analysis of the e-government era explores the ways of digital transformation on the path of the intelligent state by shedding light on the current generation.

The second part discusses the technological structure of big data among the new technologies that affect public administration. It examines the impact of its applications on public administration and the use of big data by public authorities. Another recent technological development is the study of cloud technology in data storage and the impact of cloud technologies on the governance of states. The effect of the Internet of Things, another digital age technology, on public administration has been assessed. Assessing data mining uses reveals the impact of data acquisition in public administration. The benefits of digital twin technology are evaluated, and how it is used in public administration and its benefits are investigated. The benefits of record chain technology and its impact on public administration are being assessed. In particular, the role of artificial intelligence in the transformation of the intelligent state and its combined effects with other mentioned technologies are considered.

In the third chapter, the concept of digital state, which develops under the influence of digital technologies, is assessed in the transformation of the state, how governments try to find innovative digital solutions to social, economic, political and other pressures and how they change in the process. Emphasizing that digital transformation in the public sector also involves the management of legislation, operations, human resources and change and is centred on technology transformation, different methods have been explored. The direction of digital transformation in the world is highlighted by an overview of OECD studies that provide digital transformation guidance in countries.

In the fourth chapter highlights new searches to improve public sector services following changes led by the private sector; Innovations brought by digital technologies are discussed, given that they strive for profitable development in terms of quality and price. On the axis of these changes, e-government appeals were assessed in contrast to products in the intelligent state path, which is the target point of efforts to identify all elements of public administration separately and integrate them with legislation from a single centre. The World Bank's innovative

government approach and the relationship between smart cities and intelligent states are also assessed in this section.

The fifth and final section examines the world's leading countries, which define their strategies, seeing that developing and evolving technologies are essential for the future of their industries and societies. Forms of government cannot withstand the currents that affect the developing community. Governments define their strategies according to evolving technology. The defined strategies shape the future of states. Some states want to use platforms to guide other states to adopt strategies perceived as soft power. The United States developed a production action plan in 2011; In 2012, Germany launched a high-tech strategy until 2020. In 2013, France conducted a study to determine the priorities of the new industrial policy. In 2013, the UK began an approach to create a manufacturing sector plan by 2050. The European Commission has already started work on a targeted project for 2020. 3.0 innovation leapt in production in South Korea in 2014; In 2015, China implemented a Chinese-made production strategy for 2025. In 2015, Japan adopted the 5th Science and Technology, Master Plan.

Today, the United States, Germany, China and Japan are among the countries trying to play this leading role. Germany has set an industrial 4.0 strategy in the face of China's rise. Thinking that the conditions were more appropriate, the Japanese developed a 5.0 target for society, while China, which did not intend to leave the race, continued to compete with the 2025 target. Singapore and Estonia have set an example to the world in transforming their small-scale statehood into a state. Turkey aims to play a decisive role in the new era with a national transformation that can compete with the world without missing the previous industrial ages. Many countries worldwide are trying to transfer the capabilities of technology to some government agencies.

Chapter 1. E-GOVERNMENT TRANSITION PERIOD

1.1. E-Government

In this section, the development of e-government models, which affect the management models of states where technology is rapidly developing and changing, and its effects on the structures that evolve towards a government in the new period will be examined.

E-government; It envisages a restructuring in the provision of public services, and the redefinition of all services and business processes. The basic concepts of this restructuring are e-governance and e-democracy. E-democracy, which is related to the concept of democracy, which is briefly defined as the participation of the people in the administration, is the whole of processes and structures that cover all forms of electronic interaction between public institutions and organizations, elected officials (parliament, government and opposition) and voters (citizens).

E-democracy can also be defined as the use of ICT in decision-making processes at local, regional, national and global scales by governments, representatives of the public, media, political parties and interest groups, non-governmental organizations, international administrative organizations and citizens, which are parts of democracy in terms of its definition and functioning. 23E- these definitions of democracy include promises such as 'real democracy' based on polyphony and differentiation, as well as the reconstruction of the public sphere in the electronic environment; It leads to concerns such as the fact that it leads to an information aristocracy by sacrificing those who do not have sufficient equipment and educational infrastructure, that it gives birth to digital tyrants, and that the governments take surveillance practices to the top as a result of their tendency to control polyphony and differentiation. In this context, who will gain and who will suffer from the transformation caused by technology; whether the entire population or certain segments with the latest equipment will benefit from the promised democratization; Questions such as whether the resources leading to injustices in the society will decrease or increase and who will be the decision mechanism are gaining importance. considered together; It does not seem difficult to say that e-democracy will increase the areas of abuse.

The lowest level in the e-government process refers to the harmonization of information and communication technologies to the existing order without resorting to a new structuring in public organizations. At this stage, there is a one-way flow of information. In the second stage,

while public organizations interact with the outside, they become sensitive to the expectations or problems from the outside regarding the provision of services and information. In the third and fourth stages, for a fast, economical and effective service delivery in public organizations; administrative restructuring. In the last stage, it is desired to include the private sector and civil society as well as the state in the process of determining and implementing public policies. The concept of e-governance comes to life at this last stage.

In this respect, governance means participating all individuals and elements in any institution or system in decision mechanisms. The government does not directly refer to emerging communication technologies. E-governance is not a state-oriented and one-way flow of information and service flow scheme from the state to others but a new paradigm in terms of public administration, which foresees the effective participation of all parties involved in the horizontal coordination and interaction structure in the decision-making processes in networked systems. As a governance model, the ultimate goal of e-government is "e-democracy."

The most crucial criticism of e-democracy and e-governance is that these concepts claim that developmental policies are a means of constructing neoliberal changes in nation-states. Presents e-governance as a new form of management. Governance refers to the participation of all individuals and elements in the decision-making mechanisms of the welfare state and 'national developments policies directly, and in this respect, any institution or system. Governance does not now refer to developing communication technologies. E-governance is not a state-oriented and one-way flow of information and service flow scheme from the state to others. In other words, it expresses a management model that can be described as a new paradigm in terms of public administration. The ultimate goal of e-government as a governance model is positioned as "e-democracy".

When we look at the commonly used definitions of e-government in the literature, we are faced with three different purposes. This confusion in the literature is divided in terms of the content of e-government, the delivery of the service, and the results they aim for. In the information age, we exist in e-government. It is expressed as the provision of the relations between the information society and the state mechanism that people created by limiting their will centuries ago in the digital environment using technology. In this context, when the first of the basic features of e-government is evaluated in terms of being "knowledge-based," the provision of services, and the use of technological tools, the second is "having a technical

structure," while the third is the transformation in bureaucracy, which is the basic building block of the nation-state with a centralized structure in the light of neo-liberal principles. When considered, it is expressed as a "new management style."

With the beginning of the use of the internet in the 1990s, it is striking that the efforts to define the information society of the world's countries have accelerated. The benefits of the internet were first noticed by the private sector, and businesses started to create websites. Immediately afterward, public institutions realized that they could use the internet to provide services and began to develop websites. While the websites that were made were initially established to provide information only, they later became a change towards delivering services and a step toward e-government. Thanks to the websites and technological developments, the benefits produced reach broader audiences, thus reducing their costs. An advanced communication structure will facilitate the sharing and processing of information and rapid access to information.

Technically speaking, e-government definitions focus on technology. Technically, e-government is to support the fast and accurate execution of public works with online information technology. E-government refers to the public sector that uses the internet and other electronic devices to deliver services and information.

In the information and internet age, technological tools are widely used in state administration. The sharing of information between the parties and ensuring effective mutual communication are the primary duties of e-government. It is evident that computer technology and the internet, which provides the globalization of contact and information, are the main actors in the service delivery of e-government. However, how will the widespread use of the internet and technology prevent the individual from being the number one customer of the country in general, technology producing countries, and multinational companies? This technology-based approach is incomplete in that it does not make suggestions about the security of the internet and information technologies and considers the e-government application only as a service delivery technique with a narrow perspective.

E-government has emerged for three purposes. These; are to make public services widespread and accessible, to evaluate the wishes and tendencies of citizens more effectively in the service production and management process, to pave the way for participatory citizenship, and to enable government institutions to function more rationally and efficiently.In addition to

this, transparency in public administration, reduction of bureaucracy, increasing speed, productivity, and efficiency, uninterrupted service, active participation of citizens in management, equal service to everyone, effective and rapid control are among the objectives of e-government, and e-government is the management of information society with these neo-liberal concepts. These concepts will be discussed under the headings below.

In today's societies, the tendency to openness predominates. Democratic developments in the world force the administration to be more open. The democratization of institutions contributes to the efforts of the administration to improve its relations with the public. As a necessity and as a result of the action of the administration to adapt to the change in its environment, the administration tends to open up with democratization. The openness of the administration; is a necessity in terms of communicating with the society, ensuring its participation, and establishing a transparent administration. An overly closed administration cannot communicate with the environment, so there is no opportunity to obtain information from its environment. This situation causes the administration to lose its social effects and be unable to carry out its activities. Such an administration becomes insensitive to the demands of society. However, since the decisions and practices of the administration affect the governed, being sensitive to their wishes reflects positively on the functioning of the administration. Therefore, the administration must communicate with the environment and be open to it to a certain extent.

With e-government applications, it is aimed to dominate the transparent management approach. In this regard, accessing all kinds of information in electronic media will bring with it the understanding of a "transparent state," therefore a "state existing for the people," while reducing the transparency, confidentiality restrictions regarding the works and services to the lowest possible level, it also protects the right and freedom to obtain information. Approaches are put forward that will facilitate the opening of the way.

A transparent government structure, which is one of the aims of e-government, is built based on the public's knowledge of where the public's taxes are spent. For this reason, the state should be able to account for the services rendered by its citizens or other works and transactions. Transparency and accountability do not only apply to the state and its organizations. In the democratic process, organizations that contribute to the process should also be transparent and accountable. Foundations, associations, non-governmental organizations, and political parties must inform the broader society about their activities, announce their actions,

and at the same time ensure the participation and support of the community in these activities. It should disclose to all parties concerned the donations and aid they receive, the revenues they receive, and for what purpose and where they spend these revenues.

However, transparency and accountability in the execution of public services will eliminate the confidentiality of administrators, which is necessary to protect their impartiality while making decisions and will increase the effectiveness of pressure groups on administrators. Confidentiality is essential to protect the administration from these pressures, and the administrators have to make an impartial decisions, especially in matters related to national security and national capital. Transparency, which is one of the primary objectives of e-government applications, will remove the limits of confidentiality regarding the services provided by the government and will also pave the way for the right and freedom to obtain information.

The most scathing criticisms brought to the classical form of public administration are the concepts of cumbersome bureaucracy and stationery. The main goal of all innovations produced in public administration is to prevent cumbersome bureaucracy and paperwork. In this context, the primary purpose of e-government is the transformation of public bureaucracy on a small scale and the state structure on a large scale has defined one of the most important goals of e-government as reducing public bureaucracy and getting rid of paperwork.

While transparent management is making a new definition for bureaucracy, one of the areas where e-government is considered successful, although limited, is to reduce bureaucracy in terms of paperwork. When the word bureaucracy is examined as to its origin, it consists of "office" and "meaning power. When bureaucracy is mentioned in Turkish society, it comes to mind; public administration, which disrupts the functioning of institutions, keeps citizens waiting, causes delays and wastes resources. Whether this perception of bureaucracy stems from bureaucratic structures and rules, or from the inadequacy, carelessness, ill-will, indifference and partiality of public officials, needs to be examined well. If bureaucracy is in question, the answer to this question should be sought in those who operate the system and those who benefit from the system. At this point, the concept of reducing public bureaucracy should be understood as eliminating paperwork and slowness in the provision of public services.

Globalization, which demands the abandonment of the public services it indirectly creates and the forms of public ownership it needs, is also troubled by the central structure of the nation-state and the limitations created by this main structure. The formulas containing new 'democratic' initiatives to overcome this problem are presented in an 'integrity' and speed that will encompass all segments of the pressure created by the central structure. Neo-liberalism, 'good governance,' e-government, e-governance, e-democracy, etc. forms of government that proposed change are used to change the weight and power of the center in favor of global capital within the nation-state.

These mechanisms, which come to the plan as management formulas that ensure the direct participation of the people in the administration, define participation within a pre-prepared framework on some fundamental issues such as who will participate, under what conditions, and at what stage, aside from removing the limitations of representative democracy. All these mechanisms disintegrate the legislative and executive. Judicial processes that form a whole within the nation-state, creating 'autonomous and dependent' local, regional, national, international, and transnational areas, creating a structure that disrupts and erodes public integrity and thus eliminates accountability in a sense. In this process of restructuring the state, the mechanisms by which the individual can hold accountable for the usurpation of his rights have also been taken out of the borders of the nation-state.

Technological advances around the world also affect governments. At this stage of progress, the development of information and communication systems, especially the Internet, is essential. First of all, the possibility and success of e-commerce through the Internet has brought the concept of e-government to the list of government methods (Yildirim, 2015: 6). With the increase in Internet access in homes and workplaces since the 1990s, governments worldwide have emphasized the use of ICTs to improve public administration (Mettler, 2018: 175). Although this new process is called e-government, there are different definitions. Some of these definitions can be listed as follows:

Table 1: E-Government Definitions

Hernon (2018)	E-government is simply using information technology to provide government services directly to the customer 24/7.

McClure (2010)	Electronic government; government information and service to citizens, business partners, employees, other institutions and government agencies means the government's use of technology, especially in its communication with web-based Internet applications, to increase access and distribution.
Fountain (2011)	"E-government" is an increasingly organized government. Virtual agencies are inter-agency and public-private networks, and their capacity is dependent on the Internet and the web.
Brown and Brudney (2011)	E-government is the access and efficient presentation of technology, especially web-based applications, to government information and its use in services.
Kaylor and others. (2011)	E-government is the ability of citizens to communicate and/or interact with the city over the Internet in a more complex way than with a simple email to email address.
Relyea (2012)	"E-government" has often been used both as a reference to government operations and as a symbol related to the goal of realizing the government's more effective and less costly performance.
World Bank (2013)	E-government- It means using existing ICT by government agencies to transform the relationships of citizens, businesses and other government bodies.
Gil Garcia and Pardo (2015)	E-government is the use of mechanisms to promote administrative efficiency and democratic values, as the intensive or general use of information technologies in the state for the provision of public services.

Source: Hu G., Pan W., Lu M., Wang J. (2009). The Widely Shared Definition of e-Government: An Exploratory Study, The Electronic Library, 27 (6), 968-985.

As can be seen from Table 1, e-government is the provision of public services using ICT, especially the Internet, with the advancement of interactive systems such as e-commerce after individual use of the Internet. Before e-government, citizens could apply for services by applying to government agencies in person and then through corporate websites. As he toured the floors and rooms of government buildings, they began browsing the pages and sections of the website. The concept of working hours in the services between the state and the citizen has been eliminated, and there is an opportunity to access the service without interruption.

1.1.1. Reasons for Transition to E-Government

Efficiency, irresponsible structures, bureaucratic and inefficient government are the main reasons for the transition to e-government. Society is ready to use the necessary technologies to reach the speed of the age. In the context of this demand of the society, the promises of fast service, the transition of the paper environment to the electronic environment, the adaptation of the public to the speed of the private sector, and the expectations of politicians to fulfill this demand come to the fore. Citizens who are accustomed to using technology expect the state to create technological communication channels (Yildirim, 2015: 16). In addition, efforts to build infrastructure in the development of the knowledge economy, to see e-government as the key to a competitive economy, as well as the formation of a management perception are among the reasons for e-government (Marquardt and Gokce, 2008: 4-5). Although e-government does not meet all expectations, the transition to e-government is one of the stages in the transformation of state-citizen relations.

1.1.2. Benefits of Transition to E-Government

E-government provides faster access to government information. When operations were smoother and more efficient, it also ensured citizen participation (Yildirim, 2015: 19). Saving time with the involvement of citizens has contributed to the economy of states. The uninterrupted service and speed of the electronic registration process have helped states get rid of their heavy structures. E-government has created a fund that encourages countries to use newer technologies in the digital age.

1.1.3. E-Government Transition Stages

In general, e-government is used as a valuable tool for government agencies to improve their ways of achieving their goals, such as the adoption of ICT. The critical elements in these organizations are efficiency, effectiveness, transparency, and citizen-centeredness (Jimenes, 2015). Although the stages of e-government are different in the literature, they consist of close definitions and classifications. Yildirim (2015: 24-28) and the Military Academy Command (2004: 8-17) classified these stages as five stages:

➢ The first step is to provide a one-way flow of e-government services from the state to citizens. At this stage, the main goal is to provide information that the state wants citizens to see.

- A bilateral relationship is established between the state and the citizen in the second stage. At this bilateral stage, mutual information exchange takes place. At this stage, online payment of taxes and similar transactions are allowed.
- In the third stage, internet technology opportunities began to be used more. With the removal of time constraints with online transactions, many transactions became possible, including financial payment transactions. It was possible to get various services using a single password at this stage.
- The fourth stage aims at horizontal and vertical integration in the state. It is planned to bring public services together for general customers at this stage. Information warehouses have been created and made available to citizens. An example of this is the number of days of insurance premiums.
- The fifth stage is the interactive stage, called the transition to e-government. This stage is the stage of forming a new editing system and intelligent systems, along with the development of new technologies and digitalization. This period is the transition of digital public administration to the a-state.

In recent years, as part of this research, e-government has allowed governments to provide services to the public using the Internet. It has also enabled governments to effectively access, process, report, and improve decision-making processes. ICT-based governance is now one of the essential strategies in the public sector, as data analysis serves as a tool for better decision-making, increased accountability and transparency. Such systems facilitate multi-level interactions involving citizens, governments, companies, and various strata (Rahman, AlBalooshi, & Sarker, 2015: 2). However, advances in intelligent technologies have forced governments of better informed and connected citizens and globally connected economies to reconsider their role in today's society and adopt new approaches. Governments have begun to take e-government to a new level to improve services, have an integrated, seamless service experience, collaborate with citizens, and use the power of their data to develop better solutions. The emergence of social media, mobile applications, big data analytics, and new technologies has accelerated efforts to transition to a new way of communicating between citizens and government (Harsh and Ichalkaranje, 2014: 9).

1.1.4. Features of the transition to e-government

Both national and international past programs show that the main feature of e-government is to make it easier for citizens to access public services using new information technologies. The United Nations defines e-government as "the use of the Internet around the world for the provision of information and services by states" (Guenduez, 2017: 2). IT is the foundation of e-government. The e-government model, which increases efficiency and transparency with IT, is also available in addition to the rise (Quran, 2005: 12-16). Communication in the state institution is a structure with aspects from state to citizen, from citizen to state, to investor, from an investor to management, from management to control, from management to STK, from STK to management, from management to employees (Oğurlu, 2010: 39). E-government creates a working climate for using new technologies in the digital age with its multi-faceted establishment.

CHAPTER 2. EFFECTIVE TECHNOLOGICAL DEVELOPMENTS IN A-STATE TRANSFORMATION.

2.1. BIG DATA

Big data is widely used to describe the exponential growth of data, especially data from mobile phones, satellites, ground sensors, vehicles, and social media everywhere. It also explains the rise of computer technology and algorithms that use big data for valuable information. Public sector data typically involves using non-traditional data sources and information innovations to make government solutions more sensitive and effective (World Bank Group, 2017: 1). Digital data is constantly being produced due to the widespread and continuous use of telecommunications and other devices driven by technological innovations. Global Positioning System (GPS) devices, automated money transfers, scanners, sensors, cell phones, satellites, and social media are examples of digital data creation. A wide range of high-volume, high-speed data, commonly called big data, requires new tools and methods to capture, manage and process them effectively (BigData UN Global Working Group, 2019). According to the International Data Corporation analysts, the digital data mountain is expected to increase forty to fifty times (40 zettabytes) between 2010 and 2020.

Some key sectors such as the country's danger, the determination of disciplinary decisions, medicine, health and education, government, rabitə, infrastructural and meteorological systems benefit from large-scale analysis. It is one of the government resources available to obtain information as the demand for data increases at the highest government level. Lawyers take great advantage of the resources given to support the preparation of the policy, the planning of the systems, the distribution of resurrections, and the performance monitoring (Sarker, Wu, and Hossin 2018: 66). There is the opportunity to use great information to demonstrate the authorities' actions and improve the efficiency, performance, and innovation in the preparation of the policy. Great Britain's Governmental Government Department calculates that extensive data analysis can cost 20-41 billion ABŞ dollars. It can be worth more than 100 billion euros to increase the corporate capital by using the great resources given to the government managers in the European economy. It is calculated that this money will be obtained by taking the opposite of dishonesty, decreasing the debts, and accumulating the taxes (World Bank Group, 2017: 1). McKinsey & Company's consolidation company calculates on its core statement that large

amounts of money can reduce the scrutiny of the European Union by 15-20 interest rates, and at least 223-446 billion dollars can create new value.

According to Transparency Market Research, the total value of big data in 2012 was estimated at $ 6.3 billion. It is expected to reach an astonishing $ 48.3 billion with an increase of 700 percent by 2018 and even higher in the following periods (Zakir, Seymour, and Berg, 2015: 81). In other words, big data is a data analysis methodology provided by the latest developments in technologies that support the collection, storage, and analysis of high-speed data. Big data offers new approaches to advanced questions that were previously inaccessible or impractical, exceeding the capabilities or capabilities of existing or traditional methods and systems and using existing or traditional methods. Data sources go beyond traditional corporate databases, including emails, mobile device data, database records, and unstructured data without standard formatting, sensor-derived data (Zakir, Seymour, & Berg, 2015: 82). In this sense, the intelligence of information that has become valuable has become as crucial to government agencies at the local or national level as it is to all technology areas. In November 2017, the United Nations held a conference on big data in Bogoda. The discussion focused on research and development to turn ideas and methods into modern statistics for the processing, analysis, and visualization of big data. In addition, it was noted at the conference that with the availability of widely available open data sources with common standards, sensitive information could be shared between reliable partners. It was pointed out that multidisciplinary information, including administrative data, census data, and survey data, offers practical uses through the increased capacity of workshops on big data and new analytical methods (Global Working Group, 2017: 2).

Big data is one of the technologies that government agencies need to use to move to the government stage. Although often used as a noun, big data is also a dynamic activity driven by technologies that cross many IT boundaries. IDC defines this activity as new technologies and architectures that extract value from large volumes of a wide range of data, allowing for high-speed capture, discovery, and analysis. Government agencies use analytics and big data to reduce the risk of war for military personnel, improve problem-solving and decision-making, ensure public safety, and ensure national security. Areas where big data are used, are primarily; the prevention of cyber-physical fraud, medical research, science, and engineering (OBrien, 2012: 1-

2). Investment in big data is growing as government agencies demand more information for analysis. They intend to gather more information for this. Mobile solutions can help government employees access the field to gather information and communicate more directly with citizens. Collecting and analyzing large data sets helps them do their jobs more accurately. Therefore, it requires more investment in data collection, storage, and related processes (McCarthy, 2018: 1).

Big data helps government agencies increase overall efficiency, increase the speed and accuracy of forecasting and decision-making, provide more savings, and better understand the needs of their operations and components. The advent of cloud computing, a sharp reduction in data storage costs, and advances in data matching tools together provide a new opportunity for the government to control spending and at the same time make better policy decisions based on historical performance and analytics (Informatica, 2018: 2).

Making big data in government open access, new data governance phenomenon that removes data piles, requires a new approach to information that improves intelligence sharing between institutions while maintaining data quality and data security standards. This approach will enable government agencies to analyze, augment, combine and correlate new volumes of data leading to deeper insight and greater efficiency. The collection, storage and data mining of big data is increasing day by day. While the proliferation of data makes them more important, big data primarily brings with it the problem of individual privacy. What data should the government and organizations be allowed to collect, how the data should be used, what measures should be taken for privacy are the main problems. If the answers to these questions remain unclear, it will lead to uses and perspectives that make people uneasy (Watson, 2014: 16). While seeking solutions to the problems in big data in government administration, the use of private cloud technology is also necessary when using big data.

2.2. Transformation of Big Data into Smart Data

The digital transformation of datasets explains the change of big data into intelligent data. Smart data is valuable; high-quality information is derived from heterogeneous datasets. Data quality, data security, data protection, and the value of large volumes of data are considered in my brilliant data production. Data sets are used with new technologies such as AI when using data. These new technologies enable complex operations and thus generate value-added information that will become the basis of new information output. With these techniques, big

data becomes smart data (Jähnichen, 2016: 9). According to the biggest challenges in the intelligent data context (Volker Markl 2016: 9), the technology for complex analytics is still in its infancy for large, heterogeneous, and dynamic data sources. Second, there is a shortage of skilled data science professionals who can do big data analytics with current technologies. This requires expertise in various fields of mathematics and computer science. Third, there are still significant challenges in data security and data protection. Digitized data can be quickly transferred, reproduced, distributed, and used. Therefore, the technology discussion should accompany a panel of data security and data protection and their practical and reasonable implementation. To better analyze the use of big data and its transformation into intelligent data in digital environments, it is necessary to examine cloud technology.

2.3. Cloud Data Storage

The National Institute of Standards and Technology (NIST) uses the cloud system to enable ICT access to shareable networks, servers, storage, applications, and services quickly and with minimal management effort and access to computing resources (Mell and Grance, 2011: 2). Cloud ICT is the service of accessing resources from the Internet via web-based tools and applications rather than a direct connection to a server. Instead of storing files on the hard drive or local storage device, cloud-based storage makes it possible to save them to a remote database over the Internet. Internet connectivity is the heart of cloud computing. Devices with Internet access can only access defined data and software programs. The cloud computing expression is derived from the accessed information being located in the virtual space (Harkut, 2018: 1). With the advent of cloud computing, massive reductions in data storage costs, and improvements in data compliance tools, collectively, it offers a new opportunity for governments to make better policy decisions to control expenditures while also being able to perform historical performance and analysis (Informatica, 2018: 2).

NIST describes the deployment of cloud technology in four models. The first is the private cloud, a cloud infrastructure provided for personal use by a single organization. The second is the public cloud; cloud infrastructure is publicly available and owned by an organization that sells cloud services and is provided for use by a select group of people who share the same ideals. The third model is the public cloud; The cloud infrastructure is provided for open use by the general public. The latest model is the hybrid cloud; cloud infrastructure combines two or

more different clouds (Mell and Grance, 2011: 3). A flexible cloud-based technology infrastructure should be established to facilitate the appreciation of all countries by participating in the global network and to ensure that reliable data, methods, services, and applications are shared in the public interest where applicable and legally possible (Global Working Group, 2017: 3). Leveraging remote, networked computing and cloud computing resources to process, manage, and store data has enabled small and distributed devices to interact with powerful back-end analytics and control capabilities. This technological development is heavily used in services in local administrations, especially in public administration. Public administrations should pay special attention to encryption systems when using a hybrid cloud to prioritize data security. IoT technology is also used in cloud technologies, which is an essential step in the A-government path.

2.4. Internet of Things (IoT)

British technology pioneer Kevin Ashton first used the term Internet of Things (IoT) in 1999 to describe a system in which physical technology objects can be connected to the Internet with sensors. The Internet of things has become a popular term to describe scenarios where internet connectivity and computing capacity extend to various objects, devices, sensors, and everyday items. The Internet of things (IoT) is a framework where everything on the Internet has a representation and presence. More specifically, the Internet of Things aims to provide new applications and services that combine the physical and virtual worlds, where machine-to-machine communication represents the essential communication that enables the interaction between objects and applications in the cloud (Rose, Eldridge, & Chaplin, 2015: 12)

SOURCE: Nargiz A. (2019). Use of the Concept of the "Internet of Things" in the Airline Sector https://www.havayolu101.com/2016/02/04/nesnelerin-interneti-kavraminin-havayolu-sektorunde-usimi/ (Access Date: 22.02.2019).

IoT refers to communication networks in which physical objects communicate with each other or with larger systems. For personal use, there are many uses, from televisions to white

things, from cell phones to smart or smart devices.   IoT is used in many areas, from traffic control in public places to road information systems, from watering parks and gardens to feeding animals, from controlling air pollution to tracking vehicles. Areas of application include e-government, smart city, smart environment, smart home, supply and livestock applications. IoT also plays an important role in the development of cloud computing systems (DUYBS, 2019: 1-2). The Internet of Things (IoT) influences the organizational structures of government, administrative and financial practices, and general culture. Through evolving technologies, ICT activities in public institutions are changing significantly to guide innovative governments and their relationships with citizens within government, politicians, and decision-makers, or external stakeholders such as citizens, individual interns, or companies (Kemal, Garcia, & Melin, 2019). : 1-2).

IoT is a network of objects consisting of electronics, software, sensors and actuators, and allows you to connect to these objects, interact and exchange information. Using artificial intelligence (AI) techniques, users, sensors, and networks create large amounts of information that governments can develop and gain insights into. Thus, IoT and AI can enable the development of valuable services for citizens, businesses and government agencies in many areas such as transport, energy, health, education and public safety (Kankanhalli, Charalabidis, & Mellouli, 2019: 304). IoT significantly increases the ability of a connected device to receive, store, process and analyze data for an organization. The unprecedented speed of IoT and the diversity of data are forcing public and private sector organizations to rebuild their information and analytics capabilities, adopt new information management technologies and platforms, and create new information management policies and practices to move on all that information.

IoT devices offer potential benefits to law enforcement and public safety, but the legal and social consequences need to be carefully considered. It is clear that IoT devices and the information they generate can be used as an effective tool in the fight against crime. However, the use of such IoT technologies is a source of concern for some civil rights activists and others.

IoT is used in smart sensors. A smart sensor is a device that enters a physical environment and performs predefined functions after detecting certain inputs and then uses internal computing resources to process the data before transmitting it. Using smart sensors IoT, actuators can be classified according to the energy source needed to generate motion. For

example, pneumatic actuators use compressed air to create motion. Hydraulic actuators use fluid to create motion. Electric actuators use an external power source such as a battery to generate motion. Thermal actuators use a heat source to generate motion (Rouse, 2019: 1-2). One of the cornerstones of the technological dimension of a state is the collection of data generated by different actuators and sensors in different areas of the states in large data pools and their use as intelligent data via AI.

IoT is the technical basis for running a digital business. Government agencies use this technology both for institutional improvements and for civic services and support. However, as in many sectors, government agencies produce solutions by answering the questions of what, how, and why when applying IoT technologies and solutions (Rubeb, 2018: 1-2). Public services optimized, modified or enhanced by digital technologies will be the expected basis for the future. As evolving technologies, analysts, and applications allow government officials to manage digital transformation more deeply or more effectively, they also present new challenges.

IoT platforms and emerging technologies are being used to accelerate the transition to A-government. A strategy is being developed to increase digital maturity and support public services with digital capabilities (Holgate and Lacheca, 2019: 1). IoT has brought a wider range of sensors and IoT platforms. Most of them are in the smart city sector. IoT technology, also used in the energy sector, combines a large array of data generated by smart data and uses this data to reduce energy consumption and operating costs. With IoT in cities, transactions can be made by converting data into contextual information for the safety and quality of life of citizens (ARC, 2019: 1). In addition to the use of IoT technology in the transformation of the experience of interaction of the citizen with the state through new technological developments, the technology of recording chains, in which the data is recorded in the form of an open chain, is one of the important new technologies.

2.5. Chain of Record (Blockchain)

It is one of the new technologies that can lead to major changes, including record chain artificial intelligence and public administration models of governments around the world, such as IoT. Satoshi Nakamoto, who wrote a chain of chain codes in 2008 and invented the digital currency bitcoin, disappeared after his last e-mail in 2011. An unidentified mysterious person,

Satoshi Nakamoto, has introduced a world record technology chain (economist, 2015). A record chain is a list of records called cryptographically connected blocks. Each block contains the encrypted hash of the previous block and transaction information by arranging it in a Merkle tree model. A record chain is a decentralized, distributed, and public digital book used to record transactions between multiple computers so that all related records cannot be retrospectively altered without modifying all subsequent blocks.
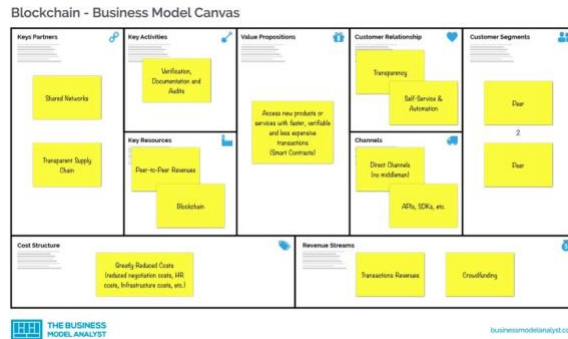

Source: https://www.coinkolik.com/blok-zinciri-teknolojisi-testten-basariyla-gecti/ (Access Date: 11.06.2019).

Most cryptocurrencies use record technology to record transactions. A record chain is simply a series of immutable data records with a time stamp controlled by a set of non-corporate computers. With artificial intelligence technology, blockchain-based smart contracts can be implemented, in part or in full, without human interaction. Record chain technology can also be used to create a permanent, public, transparent accounting system to collect sales data, track digital usage and payments to content creators such as wireless users or musicians. Block-geeks record chain (2019: 6-12) in its findings, smart contracts, sharing economy, management, supply chain audit, file storage, forecasting markets, intellectual property protection, Internet of Things (IoT), identity management, money laundering,   data management reflects the registration of land ownership.

Some of the areas it uses include banking, money transfers, production and storage of valuable documents, e-commerce and payments, stocks and exchanges, e-notary, person-to-person debt and credit systems, donation systems and micro payments, cloud computing and secure cloud storage. (TÜBİTAK, 2019: 7). Cryptocurrencies are the most widely used chain of records in the world. The record technology chain has become a prominent use in international

trade, especially in international logistics. The World Bank estimates that a record chain of $ 430 billion was transferred in 2015 (Blockgeeks, 2019: 4-9).

Chaining technology can be used openly and with permission, confidentially and with permission. With blockchain technology, public access, private access, or limited access blockchains can be created with open, private, hybrid blockchain models. Record chain technology - Especially used in various fields such as voting systems, document data management, energy system, smart contracts, digital identity, digital passport, social security systems, tax systems in the public sector (Unsal and Kocaoglu, 2018: 57-59). The three comforts that make it attractive come to the fore. The first is that there is no need for authority or intermediaries, which not only increases the speed of work and operations but also minimizes costs. The second is under control from many different points. Third, it is an ideal platform to see where the data is coming from and where it is going (Sonmez, 2016: 2).
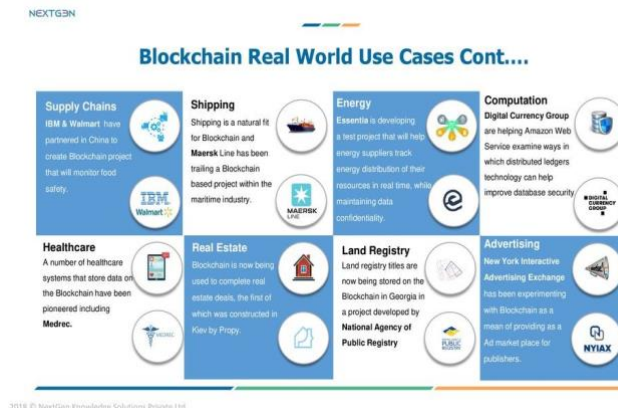
Transparency, prevention of fraud and manipulation in government systems, reduction of corruption, increased control, audit capability, fight against cyberattacks, data integrity and high information quality, reduction of human errors, confidentiality, reliability, access to information, flexibility, security, consistency, reduction of energy consumption and uses record chain technology for targets (Durgay and Karaarslan, 2018: 4-7). In the digital world, the creation of a digital state and an important part of the transition to an a-state, especially for data management in trusted and transparent states, is a record technology chain. One of the new technologies that affect the direction of states is digital twin technology, which simulates the physical structure of the state and creates digital states of objects.

2.6. Digital Twin Technology (DIT)

DIT refers to the digital representation of a twin real being or system. By 2020, Gartner predicted that there would be more than 20 billion connected sensors and endpoints and potential digital twins for billions of objects. Organizations will initially develop the skills to collect and visualize accurate data, apply proper analytics and rules, and respond effectively to business goals using only digital twins (Gartner, 2019: 1).

Source: Kahraman H. (2019). The Rise of Digital Twins in the Internet of Things, https://www.endustri40.com/nesnelerin-internetinde-dijital-ikizlerin-yukselisi/ (Access Date: 23.02.2019).

Digitalization in every field we see frequently in the last period has entered our lives with the previous digitized records, communication, written texts and checks. In the new period, digital versions of objects are created and models that do not disappear and continue to work are created. Virtual copies allow us to simulate objects that need to be analyzed. Today, DIT and IoT field are also developed and the physical world is transformed into digital. DIT is improved

by collecting IoT device product lifecycle management data and data from product properties. This makes it easy for engineers to link design, customer satisfaction, device performance, and device reliability. With the interfaces created, the digital twin becomes a bridge between the physical world and the digital world (Kahraman, 2019; Erturan & Ergin, 2017: 19). DIT is also used in robotics technology. It enables the physical robot to reflect its movements in real-time, draw the plan of the robotic sensor data and control the robots (Overn, 2018: 8).

In the near future, there will be businesses that manage the digital twins of their organizations. Will be able to use digital twin technology to understand how an organization operates its business model, connects to its current state, allocates resources, and measures expected customer value and respond to changes. This system, which will make preliminary determinations with dynamic software based on data, will help to create more flexible, dynamic,
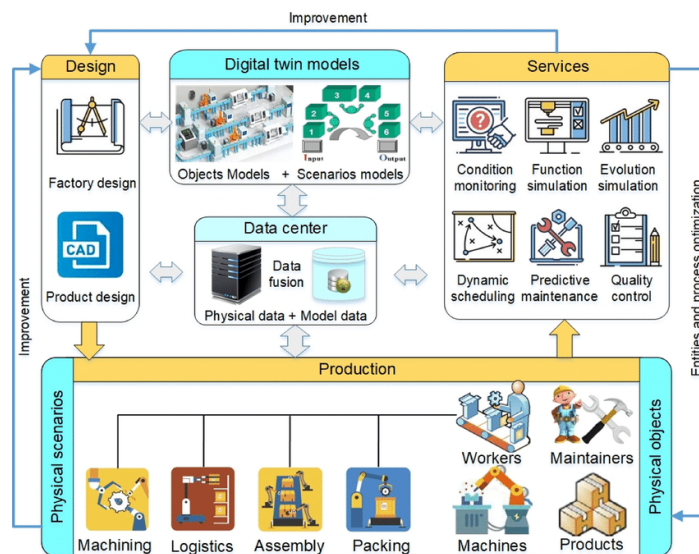
and responsive processes that can automatically react to changing conditions, as well as increase efficiency in business processes (Gartner, 2019: 5).

Source: Erturan İ. E., Ergin E. (2017). Internet of Things in Auditing: Stock Cycle Journal of Accounting and Finance July/2017.

The data obtained with the help of computers and sensors are instantly uploaded to the cloud systems. These data, which consist of different types of information; Smart systems are used by customers, vendors, logistics institutions and banks. This information collected in the
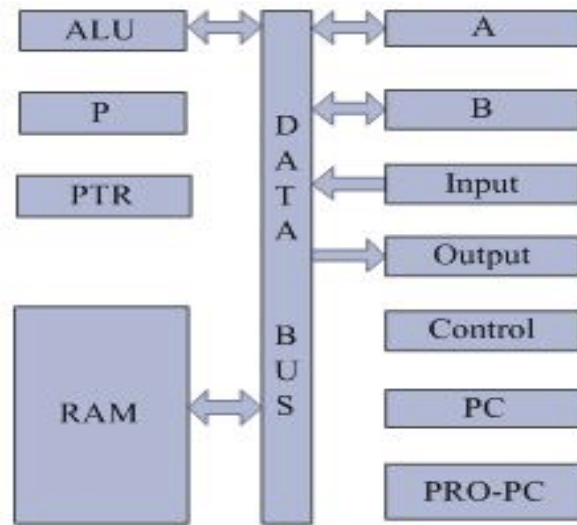
big data bank provides the opportunity for continuous auditing. In this way, the problems are quickly detected by detecting the problems immediately and the necessary interventions are made on time (Erturan and Ergin, 2018: 826-827). In addition to the audit example, in governments, digital twins can help identify organizations' performances and weaknesses by combining numerous technologies to create full-scale digital models of real-world objects and processes. 3D DIT is used to monitor major events in public safety. Urban design and planning has many uses for this technology. Maps and GIS databases are also DITs. DITs started designing in a computer-aided 3D design model. This design can be changed during the production phase of the product. As the production process and the production process of the product progress, DIT records these changes digitally over time. Thus, government institutions can preserve the modeling by recording the consistency (Goldstein, 2019). DIT offers strong assistance in public administration in states with strong contributions in the use of IoT. By simulating the physical structure of the state with DIT and providing variables on this simulation, time and resource savings can be achieved by presenting the positive results of the tests to the use of the state in physical or digital environment.   With these features, DIT constitutes one of the important building blocks in the a-state transformation in the understanding of the digitalized state. The discovery of data is also important in the digitalizing new era where data stands out. Data warehouses and the use of data mining are new methods of using data for discovery and stacking.

2.7. Data Warehousing and Data Mining Use in Government

In the information age, where electronic media is used for data communication and storage and data is surplus at exponential levels, the discovery of information using databases is called data mining (Ergün, 2019: 6). It can be applied to all kinds of information pools such as data mining, data warehouses, different database systems, internet, fixed files. Data mining and data warehouses are used in applications in the data environment from government to private sector, government to citizen and government to institutions (Arora and Gupta, 2017: 28).

The use of data storage and data mining technologies in e-governance in governments significantly helps decision makers to achieve results in their e-governance initiative. If we list the important titles among these decisions, we can provide integrated data from different platforms for the implementation of the strategies, reduce the storage requirement while reducing

data piracy, contribute to the coordinated work of the employees, find the relevant information on the web to increase transparency, better analyze the citizens' needs, and make effective decisions. can be classified as faster access to data (Arora and Gupta, 2017: 29). Data mining is an important step on the way to information as states transform into a state in the digitalizing age.

After cleaning up the complex and inconsistent data, the stored data, combining different data sources and identifying the data related to the analysis are the preliminary stages of data mining. After the data is transformed according to the data mining method, the patterns in the data are determined and the interesting ones are evaluated separately and the output documents are presented to the users. The process has many facets of choice as no single formula can be presented for the right choices for each step and type of application. Therefore, it is necessary to evaluate the process according to the different needs and possibilities at each step. (Ergün, 2019: 16; Maimon and Rockach, 2005: 2).

The integration of data storage and data mining with e-governance leaves no need to deal with heterogeneous databases. Officers will be able to obtain data at different levels of detail.

There is no obligation to use complex tools to derive information from large amounts of data. With the in-depth analysis of the data, it is possible to find solutions to complex queries. It is also a powerful tool against corruption (Arora and Gupta, 2017: 29).
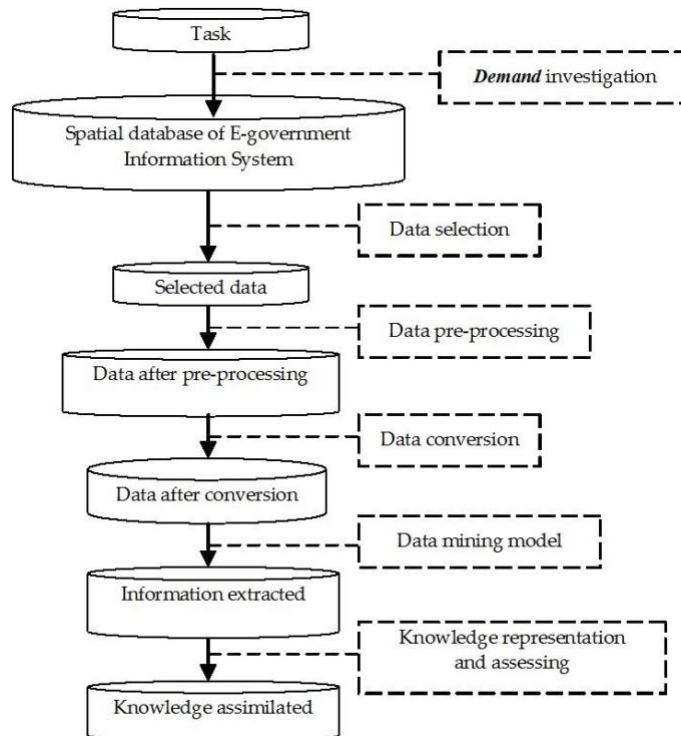
Source: Kalra D. (2018). Applications, Modelsand Uses of Data Mining in E-Governance for Sustainable Development DOI: 10.13140/RG.2.2.30628.99207

Data mining is linked to the process of extracting legitimate, previously unknown, understandable and actionable data from large databases and using it to make appropriate business decisions. It can be used in many transactions, from state to citizen communication, from identity information to economic data, from behavior patterns to what rights and how much. It is used in state government operations, agriculture, disaster management, monitoring departments, education, fraud detection, health. In addition, data mining is used in employee-government relations and government-private sector relations. Data mining application, use and methods in e-governance will not only improve the development of internal competence but also in the decision-making phase (Kalra, 2018: 3-12). Data storage and mining are processes that

should be used in the a-state transformation phase of states. One of the systems that states must use in the formation of A-state is artificial intelligence.

2.8. Artificial Intelligence (AI) in the Public Sector

Artificial intelligence (Artificial Intelligence, AI for short) is used to describe machines that mimic cognitive functions that relate to human minds, such as learning and problem solving. Systems that think like human beings, systems that think rationally, systems that act like humans, and systems that act rationally are gathered in four main groups. AI research work as an academic discipline began in 1956 at Dartmouth College. (Russell and Norvig, 2003: 2-8). Technological possibilities that have developed until today have made AI more spoken and used today. AI is used in many areas, especially in health, automotive, finance, economy, government, video games, military control, advertising, art, internet software. AI is being used to help the public sector leverage advanced smart technologies to improve government services. It has started to be used in many areas, especially in the use of big data in the public sector, cyber security, smart cities, and general services.
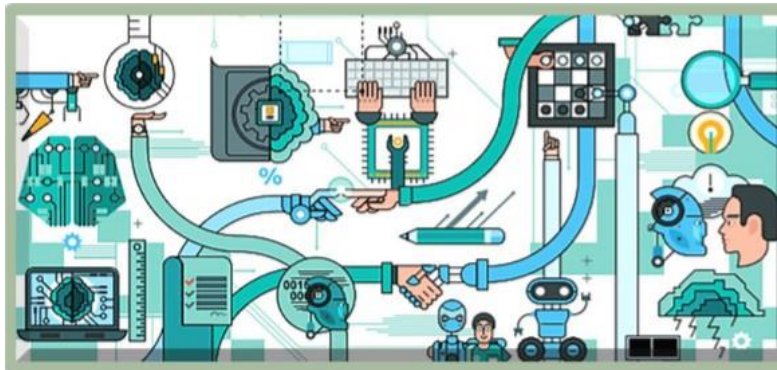
Source: Eggers W. D. , Schatsky D. ,Viechnicki P. (2017). AI-augmented government Using cognitive technologies to redesign public sector work, A report from the Deloitte Center for Government Insights, Deloitte Universty Press, Deloitte Development LLC. p.14.

In recent years, technology has moved from science fiction to real life. AI programs can play games, recognize faces and speech, learn and make informed decisions. Among AI-based technologies, machine learning, computer vision, speech recognition, natural language processing, and robotics are being developed at an exponential rate. Developers are working on implementing AI solutions in everything from self-driving cars to autonomous drone swarms,

from intelligent robots to surprisingly accurate language translations. AI is presented in governments as new options for how to get things done, some fully automated, some split between humans and machines, and some as systems developed by machines but used by humans. While smart technologies embedded in sensors and cameras enable real-time monitoring and reporting of important information, employees become more effective by completing their skills with technology (Eggers, Schatsky, & Viechnicki, 2017: 3-10).

New digitally-enabled experiences augmented by AI provide citizens with intuitive, helpful, and personalized services. Data collected through digital systems can be analyzed to generate insights and achieve better results for the society and the economy. Within the organization, workforce productivity is optimized using new digital approaches collaboration, artificial intelligence, and digital learning technologies. (Ward et al., 2019: 5). As advanced as AI may be, the human brain is worth more than non-robot jobs such as constructive problem solving, innovation, customization, discretionary decision making, in-depth analysis, and human-to-human communication. Intelligent automation offers great opportunities for government workers to focus most of their time on higher-value, higher-satisfaction jobs. As AI systems and robotic systems evolve, state mechanisms automate more complex tasks (Patel, 2018: 13).

When applied wisely, AI becomes a national asset and a source of global competitive advantage. Numerous governments are investing in national AI strategies that involve both the public and private sectors. Despite the USA's desire to be a leader in AI technologies, Germany has allocated US$3.4 billion for AI in its national strategy published in 2018. While France plans to spend $1.8 billion on AI systems, South Korea has allocated $2 billion for research. China claims to develop a $1 trillion AI industry by 2030, promising to spend $100 billion in tax revenue on AI. The increase in the use of artificial intelligence in the government will have great effects on the government workforce. Workforce planning will also need to consider the relationships between technologies such as humans, robots, machine learning, and interactions between external partners (Eggers, 2019: 11-12).

Each government agency should evaluate the business case for each technology separately.   A wide array of government activities that enable them to grow and automate, such as recording information, communicating with citizens, examining and supervising financial activities, and executing financial transactions, should be structured on an a-government basis.

A-government practices and technologies must go beyond human capabilities by considering the interaction of strategic workforce planning, talent, technology, and design. A-government practices and technologies require government agencies to become more productive in workforce planning and job design. Mission, talent, technology leaders, and governments should work together to analyze the problems and opportunities offered by smart technologies and to suggest a way forward (Eggers, Schatsky, & Viechnicki, 2017: 2-14). Developed techniques and technologies are used by states in the digital era, and public administration forms are transformed towards a digital basis. This new digital government model is also an important stage of the structures evolving from e-government to e-government.

Chapter 3. DIGITAL STATE (D-GOVERNMENT)

3.1. D-State

D-state is an attempt of states to keep up with the times in our age where technology changes at a dizzying speed. The world is changing rapidly. Transformation in economics, politics, management, in every sense is realized by means of information and communication technologies. There have been significant changes in economy, politics, administration, science and technology. Issues such as democratization, the development of civil society, and the spread of neo-liberal policies in the same period also changed the service delivery approach of the state (Sagın and Akkoyunlu, 2003). These changes made it necessary for the centralism, secrecy, bureaucratic oligarchy, which is one of the basic elements of the traditional state understanding, to re-transform the public administration in accordance with the requirements of the age and became one of the most important factors in the emergence of e-government (Erdoğan, 2019). While these approaches weaken the singular position of the state, they raise citizens to the position of customers, that is, to the position of waiting for quality while receiving service. Information and communication technologies also played a facilitating role in this period. Here, e-government stands out as the general expression of this transformation (Doğan and Ustakara, 2013). In this process, states are trying to provide better quality and faster service by electronicizing services (Demirel, 2006). This approach also transforms the traditional methods in the delivery of services. In this sense, e-government is not only a tool transformation, but also a mental transformation (Baştan and Gökbunar, 2004). The claim that e-government is only an instrumental transformation has lost its validity as the transformation takes the path of digital government.

Transparency, the first aim of e-government is to provide a transparent administration. Accessing the desired information electronically is a requirement of the transparent state understanding. The right to obtain information is provided by e-government. Thus, information will quickly become widespread in society (Koç, 2010). At the same time, e-municipality applications, which are frequently used by filing, in terms of ensuring the direct participation of the public in decision-making processes, appear as an indispensable and complementary element of e-government applications (Erdoğan, 2019) .

With the effects of developing information and communication technologies, it can be said that e-government has developed based on a need. The benefits of e-government applications that develop as a solution to the problems faced by public administrations can be listed as follows (Çarıkçı, 2010; Çetinkaya, 2010):

➢ Changes the forms of service delivery.

➢ It allows the management mentality to change.

➢ Provides effective and efficient service delivery.

➢ It provides an environment for the establishment of electronic democracy.

➢ Interaction costs are reduced.

➢ Access to information becomes easier.

➢ It enables a transparent management.

A successful e-government model includes economic development, social-cultural development, life It can provide benefits in many different ways, from improving quality. Other benefits such as widespread and accessible services, taking into account the demands of citizens, increasing efficiency, improving organizational capacity, reducing bureaucracy, gaining speed and efficiency, increasing transparency and accountability can be listed in this context (Yavuz & Çarıkçı, 2009).

The adoption of digital technologies by the private sector and the use of these technologies by citizens have made it necessary for states to provide their services using digital technologies. To facilitate the use of government services, to optimize the return on public investment, to keep people's information and strategic interests safe, to develop talents and restructure work in the public sector, to help societies and economies function better with smart infrastructure, a digital transformation obligation has arisen in states (Bertrand and Atalla, 2019 : 1-12). The transformation in states with the internet at its core is a process of change that starts with e-government, which makes life easier by influencing all kinds of public service systems, from economy to politics, from tax collection to infrastructure systems, which could not even be

imagined before the internet, and enters the path of digitalization (Waller and Weerakkody, 2016: 6-14). Four macro trends are pushing the digital transformation of the public sector. These; social instability, constant savings, the search for a sustainable system, population aging (Howard, 2018: 1). The emergence of digital technologies has also affected state-citizen relations and brought the way citizens interact with state institutions by using new technologies instead of paper-based documents.

It is not necessary to go far back to find out when and where the policy based on the provision of services in the electronic environment, which does not have a long history, emerged. Because this policy is specific to the recent era with the aspect of service provision only in the electronic environment. When e-government policy is viewed only from this perspective, it has an average life of twenty-thirty years, and it first emerged in the USA and then spread to the world. E-government applications, which developed as a process, first started with document passers, simple computer devices, and automation efforts increased after the 1970s. The fundamental transformation of these applications, which took place to speed up and shorten the processes, was made possible by the use of computers and the widespread use of the Internet (Çarıkçı, 2010).

As part of the e-government policy in the USA, some public services have been offered on the internet since 1985. The first example in this sense is tax collection and declaration filling done online. This service was initiated within the Federal Revenue Service (Internal Revenue Services/IRS). With the development and spread of the Internet, the number of public services transferred to the electronic environment has also increased. Today, e-government applications of the USA can be accessed through the e-government gateway called "usa.gov" (Demirhan, 2011: 24-25). The e-government approach became widespread in the USA in the 1990s. The transformations, which started with a savings target of 108 billion dollars for 1993-1998, provided savings above the expectations in this period, and the positive opinion towards the transformation expanded. This transformation was carried to the European continent in 1999 with the e-Europe Initiative and became widespread (Güler and Dövertaş, 2009). According to the United Nations E-government Development Index Report, it has been mentioned that e-government applications have consistently shown a positive trend since 2001, when it was first published. It is seen that the percentage of countries that have developed more than 15% in the

e-government development index increased from 0.43 to 0.50 even between 2018 and 2020 (UN, 2020). While it is stated in the UN report of 2018 that 140 member states offer at least one online service, it is stated that in the light of current data, nearly 80% of the member countries provide e-government services to disadvantaged groups in the society. As of 2020, while Denmark, Australia and Estonia are in the first three of the e-government development index among countries, it is seen that Turkey is among the countries in the high development group in e-government applications (UN, 2020). Especially the Presidential Communication Center (CIMER) is included in the report as an important e-government application (UN, 2018). With the developments in e-government applications, Molenwaard Municipality in the Netherlands, which continues to serve without the need for a physical municipality building, has become one of the most impressive examples of digital municipality (Erdoğan, 2019). Digitalization has an important democratic function not only in the provision of public services, but also in increasing public participation in decision-making processes. In this context, one of the first examples of applications that contribute to the development of local democracy is the Antalya Muratpaşa Municipality Digital Neighborhood Assembly application. Through this online platform, the residents of the municipality can express their opinions, offer suggestions and vote on the issues determined by the municipality (Erdoğan, 2020).

E-government efforts in different countries at different stages point to a process. Different factors such as human resources capacity, technical capacity, social disposition cause e-government to be realized in different stages. In addition, technological developments and the spread of applications also point to a process:

First Period: As stated before, there is only a presentation of information and closed communication**.**

Second Term: It is the period of moving the services to the online area. The information provider role is being functionalized and communication channels are opened.

Third Period: Services are integrated through websites and institutions transfer service delivery to the virtual space with different website links.

Fourth Period: This period can be defined as the inclusion of public institutions in this field, the acceleration and strengthening of citizen interactions, with the widespread use of social media all over the world (Babaoğlu & Akman, 2018; Yıldız, et al., 2016)**.**

Fifth Period: Information and communication technologies are developing at a geometric rate, not arithmetic. In recent years, there have been great changes in different technological fields such as artificial intelligence, big data, internet of things, robotic technologies, chain of records. Although it is not easy to date specifically, it is possible to point to post-2015 if it is necessary to draw a line. In this period, the concept of d-government becomes more important than the concept of e-government.

The D-state transformation is constantly changing, reflecting how governments seek to find innovative digital solutions to social, economic, political, and other pressures and transform themselves in the process. In the public sector, digital transformation is a transformation with technology at its center, which also includes legislation, process, human resources, and change management (Yılmaz, 2017: 15). Understanding and predicting such changes is important for policymakers, government administrators, researchers, and anyone who prepares, implements, implements, or evaluates d-government decisions. It is observed that the concept of D-state is moving towards more complexity and more specialization, similar to transformation-like processes that lead to change in cultures and societies (Janowski, 2015: 221). Even from the e-government initiatives that have already emerged as the beginning of digitalization and integrated sensor systems, it is known that a large number of projects have been launched under the umbrella of e-government aimed at connecting physical, digital, public, and private environments (Guenduez, Mettler and Schedler 2017: 1). Since the 90s, efforts have been made to use the high potential use of the internet for public administration in the process of transition from e-government to a-government. The process that started with e-government has put public administration on a new path with increasing digitalization. The goals of this digitalization have been to increase transparency in government and administration, increase accountability, encourage participation and cooperation with citizens and other stakeholders, and increase the effectiveness of government action (Schedler and Guenduez, 2017). States experiencing digital transformation in the world pass through similar stages in different periods.

Existing capacities, which have become widespread with the use of digitalized technologies and the private sector and made available to governments, have brought the use of techniques such as e-government, open data, central data, and digital signature. There are gaps

such as the incompleteness of ICT projects, the inadequacy of personnel in digital technology, the lack of support from governments to sufficient technological initiatives, and the lack of testing phase of new technologies. While digitalization offers ease of operation with new opportunities, it also offers sustainable growth opportunities as well as paperless service, transparency, inclusivity, data-orientedness. Low trust in the citizens of digital environments, lack of encouragement of ICT, old system resistance, privacy concerns, and inter-system integration problems are also observed as threats.

Governments should be mindful of five issues when investing in technologies to improve citizen-centric services:

First of all, it should be accessible to end users with transparent accountable measures while reducing the possibility of fraud by using unified interfaces to ensure uninterrupted data flow between units.

Secondly, it should manage the permissions of deleting, publishing and editing data by the principle of transparency, paying attention to privacy and intellectual property rights.

Third, it should streamline the workflow by automating process management, in-house or inter-agency service delivery policies, and tasks to be assigned to employees.

Fourth, it should replace the paper-based recording system with the electronic recording method, with the easy method of indexing, classifying, labeling, transferring, and storing information.

Fifth, a rule management system should be established with IT, and actions should be harmonized with digitalization, automatic identification in case of change of management execution rule changes, complex rule sorting, resolution in conflicts should be resolved using AI (TA Digital, 2018: 4-5). The digitized state has some differences from the analog period.

While political life evolves from parties to community interaction, one-way communication becomes two-way, and digital voting systems are used to enable citizens to participate in political processes. Since the legislative changes were limited to the administration and the parliament, citizens are also included in the process through referendums and similar methods, with the digitalization of citizen participation and instant governance. In the

digitalization period, where public services are also transformed, the state, which is the main provider of public services, includes the private sector in the service production process and ensures that uniform public services are produced as personalized services. An important advantage of digital technologies is that they reduce costs to a minimum. Analyzing macro-level data in detail, enables public administrators and politicians to use citizen-oriented policies in a fast, quality, and real-time manner (Gül, 2018: 21).

Transformations experienced in different countries affect other countries in the era of globalization (Şeker and Şeker, 2009). In Kazaghistan , different studies have been carried out in the past years for the transition to the information society. For example, the 'Tax Office Full Automation Project' (VEDOP) of the Ministry of Finance and the 'Central Population Management System' (MERNIS) of the General Directorate of Population and Citizenship Affairs under the Ministry of Interior can be given as examples. Although these efforts started in 1998, the first general policy was prepared in 2002 after membership in the e-Europe+ Initiative (Saylan, 2009). With the Prime Ministry Circular issued in 1998, efforts were planned for both "e-Europe+" and e-Turkey. "One of the important duties of the Public Net Technical Board is to create an electronic government portal to ensure that institutions that will provide active, transparent, reliable, fast and uninterrupted service of the state are transferred to the virtual environment by making use of the possibilities of information and communication technologies in the transition to the information society and to carry out the relations between the state and the citizen in the electronic environment. is to create" (Dönmez, 2007).

It is possible to summarize Kazaghistan's e-government transformation process since 1999 as follows:

• Including the E-Transformation Turkey Project in the Emergency Action Plan prepared by the 58th Government,

• 1999 Turkish National Information Infrastructure Master Plan TUENA was put into effect,

• With the Prime Ministry Circular No. 2003/12, the SPO for the determination of the objectives, institutional structure and application principles of the e-Transformation Turkey Project and the management of the process appointment of the Undersecretary,

• Establishment of Information Society Department (BTD) within the body of DPT in 2003,

Benefits for governments and citizens in digitalization As can be seen from Table 8, there are benefits in public finance, security, education, transportation, infrastructure, social services, health services, tax and customs, and defense.

These benefits include higher efficiency, lower costs, better service quality, reduced fraud, and abuse of public services.   In addition, better data-driven policies, more effective budget allocations, more personalized services, increased transparency and accountability, higher citizen satisfaction, ease of doing business and incentives are evolving along the axis of improved international reputation. D-state creates the assumed interaction as a basic principle through digital channels. System; Users and citizens get rid of unnecessary bureaucracy by giving information to public administrations only once. The integration of constantly developing techniques and technologies keeps the system alive. The system that produces seven and twenty-four services is managed from a single center with open source technologies over multiple channels such as desktop and mobile (Filippov, 2015: 5).

Source: Cassells D. , Gilleran A. , Morvan C. , Scimeca S. (2016). Growing Digital Citizens, Central Support Service for eTwinning, Brussels – Belgium

3.2. The Digital State in OECD Studies

According to the OECD Council on Digital Government Strategies, the digital government can be defined as the use of digital technologies and the integrated modernization strategies of states to create public value. (OECD 2014, 1-6). Creating public values with digital methods is a whole with interconnected organs such as trees and branches. By supporting more strategic use of public sector data and information, such as open public data policies and initiatives, governments can benefit from policymaking, service design, and innovative regulation using digital technologies, as well as increase participation, accountability, and transparency at all levels (OECD/IDB, 2016: 359). -360). With the pioneering of digitalizing technologies and the emergence of new smart systems in the world, the integration of smart systems with digital systems and as a result a state has been brought to the agenda. To make sense of digitalized technological developments, the web development of the internet should also be perceived as integrated.

OECD supports the development and implementation of digital government strategies that bring governments closer to citizens and businesses. It has gathered the working principles under three pillars, under 12 headings, with the study conducted to guide and support the use of digital technologies to promote innovation, transparency, and efficiency in the public sector.

Establishing Trust and Ensuring Transparency

If we examine the first column headings classified by OECD as openness, transparency, and inclusiveness, participation of actors in policymaking and service delivery, creating a data-driven culture in the public sector, protecting the privacy and ensuring security;

Openness, Transparency and Inclusivity

The use of ICTs by the state provides the opportunity to produce openness, transparency, and inclusivity. To gain an advantage by using these opportunities, states need to increase openness and transparency and ensure the formation of standards while producing legal regulatory frameworks. In this way, it should raise citizens' expectations in terms of transparency, honesty, and accountability. Technological tools should be used to reach the most vulnerable segments of the population with a digital government strategy while working to increase the awareness-raising capacity of civil servants to solve the problem of loss of trust in government institutions.

Creating a Data-Oriented Culture in the Public Sector

The public sector today is responding to increasing demands for better quality public services despite tight budgets. It should encourage the participation of public, private, and civil society stakeholders in policymaking and public service design and delivery. It should be in a way that encourages the use and participation of ICTs while creating legal frameworks in the process of meeting demands. In the determination of these principles, early, medium and long-term levels should be determined by the development stages of the country.

Working with citizens and other non-institutional stakeholders is one of the best ways governments can respond to today's challenging business. Governments should create consultative tools for participation in public administration and the public, using ICTs to integrate stakeholder views by increasing the number of open government data portals, along with more collaborative approaches to policymaking and service delivery. To integrate citizens in the policy cycle and the design and delivery of public services, the system established to collect information and input about citizen preferences should be used. While government

agencies create standards for inclusion and transformation in designing their websites and online services to create active and continuous participation, policies should be developed with algorithms that use the d-state ecosystem as citizen-oriented public governance through ICT technologies.

Protecting Privacy and Ensuring Security

İt's vital to offer leadership and management systems that can balance openness and participation with adequate privacy safety and safety. increase an approach to attract, broaden, and retain the technical skills essential to ensure security and records protection in authorities and national IT structures. An approach should evolve to growth hazard and chance discount consciousness among public officials and the public. Regular campaigns need to be prepared to increase public recognition and recognition of rising dangers to information security and privacy. It has to mirror a threat control approach via addressing virtual protection and privacy issues and make sure the adoption of effective and suitable security features. Using developing a dependent technique to face risks and incidents or measure performance or the outcomes of safety breaches, it ought to be aimed to preserve the best degree of security while protecting privateness.

3.2.2 Consistent Approaches to Delivering Public Value Across the State

The integrity of the study needs to examine the second pillar headings classified by the OECD as secure leadership and political commitment to digital strategy, the consistent use of digital technologies at policy areas and government levels, effective organizational and governance frameworks in d-government, and strengthening international cooperation with other governments.

3.2.2.1. Confident Leadership and Political Commitment to Digital Strategy

Political aid is vital to the fulfillment of the virtual transformation schedule. All government-focused stakeholders should be concerned about the process of digital transformation with a country broad virtual approach and movement plan. Top management must be sensitized on the strategic significance of ICTs as critical to more robust performance for d-government reform in the public area. An imaginative and prescient declaration for D-government wishes to be incorporated into the approach that connects and helps better-level public quarter reform. Working with stakeholders and at the international degree, in line with the priorities set inside the countrywide virtual agenda to ensure all relevant stakeholders' participation coordination mechanisms have to be developed to expand timely and coherent techniques throughout the complete public quarter. There need to be robust political and public

assistance for virtual transformation efforts across the public region. The method should be controlled by developing crowdsourcing, collecting comments, and inspiring participants to reinforce oversight and assessment of the implementation of the virtual authorities action plan for outside actors, including citizens, businesses, and NGOs.

As the use of facts and verbal exchange technologies increases, the sharing of approaches and statistics becomes greater critical. Higher coordination at kingdom stages and expanded efficiency are wanted for described governance to ensure coordinated improvement and alignment of relevant strategies. The unit responsible for helping virtual transformation in the public sector via regular strategic choice-making have to be installed. Via constant strategic choice-making, authorities departments, including data control digital provider shipping, have to assist virtual transformation within the public zone. Via those establishments, governments construct new units by leading virtual transformation, ensuring the introduction of an accountable function or unit.

Chapter 4. SMART GOVERNMENT(A-STATE)

4.1. A-Government Overview

Although e-government studies have become widespread over the years and grown by adding new modules, in our age where they are far from meeting expectations, the development of the internet, extensive data analysis, and artificial intelligence are becoming more and more critical. It is seen as the beginning of a new wave of change in public administration. After the 1980s, the development of neo-liberal policies accelerated the process of global harmonization and integration. The transformation in economic and technological fields after the 1980s made it necessary for nation-states to make some arrangements in their jurisdictions.   The leading of these regulation areas is the administrative structures of nation states. The "social state" policies implemented before the 1980s caused the excessive expansion of state institutions and services, the clumsiness of the administrative structure and the growth of bureaucracy due to the state's intervention in every field. Various debates arose with the implemented social state policies and the economic crisis in the 1970s. The main subject of the discussions was that the state should intervene in the markets or not interfere in the markets in any way.

In the axis of these discussions, neo-liberal thinkers stated that the state should almost assume the role of a 'night watchman'. Because inefficiency and failure were seen in every field where the state intervened. Neo-liberal thought generally advocated the existence of a more pluralistic, democratic and participatory management structure (İnanç, Demiray, 2004: 5; Arslan, 2010: 24). With neo-liberal policies being the dominant view and increasing the impact of globalization, nation-states had to make various reforms in their administrative structures and in the provision of public services.

It is observed that public sector organizations aspire to an advantageous development in terms of quality and cost by following the changes led by the private sectors in their search for new ones that will improve their services. These developments, unlike e-government applications, have led to the need for all elements in public administration to be defined separately and implemented in an integrated manner from a single-center together with their legislation. The target point of these new studies has been defined as the smart state (a-state) (Karagöz, 2016: 99). A-government, which is completely different from each other in terms of the construction process, which can be considered a higher version of e-government applications,

integration, and top management center-based smart state structures are new public structures that will be discussed and discussed much from now on. There are a-government applications in the world that can be considered in the testing phase. In this new era where technology is at the forefront, it cannot be guaranteed to solve with technology alone without having trained human resources. This structure, which is in its infancy, is now the indispensable aspect of our age (Schedler and Guenduez, 2017: 1-4).

Humanity, the rapid development of information and communication technologies, is in the process of transformation beyond change. The new society is organized around knowledge.

Instead of the "production of tangible products," which is at the forefront in the industrial society, "information production" gains importance as a result of the use of information technologies in the information society (Öğüt, 2003: 39).

In various services provided by the government in the classical understanding of the state, citizens are faced with a lot of bureaucracy. Simple procedures become complex structures for employees to implement, and as a result, too many staff and officers are hired to run the business. In addition, numerous forms and signatures may be required for simple transactions, and transactions may take months (Yıldırır and Karakurt, 2004).

In the current era, information technologies are the main factor affecting the structure, functioning, performance, and change of organizations. The private and public sectors are deeply affected by information technologies (Isaac-Henry, 1993: 15). Employees now work with bytes instead of pieces of paper, replacing database filing cabinets. (Bennet: 1998: 92). In this process, states are trying to improve their service quality and increase their performance by transforming into "e-government" and moving away from the classical state understanding.

In the information society, the expectations of individuals from the public as customers/citizens are not only the presentation of public information, but also that the information provided is understandable, usable, up-to-date, accurate and complete. In order for private sector business organizations to make optimal use of information technologies and systems, it is obligatory for the central government to fulfill the incentive and technological infrastructure preparatory roles (Öğüt, 2003: 44).

The electronic government structure does not only meet the demands of citizens to access information. Being able to see public services in electronic structures also includes the ability of citizens to transfer information about themselves to the relevant departments of the public without any problems and easily.

In the electronic state structure, it is not possible for the citizens to come face to face with public institutions. Instead, the public information system is accessed through the information communication backbone, which is expressed as the public information highway, and the requested public service is accessed with the guidance of this system (İnce, 2001: 23-24). Thus, because of being a giant information warehouse and providing the opportunity for direct participation, the Internet makes the function of obtaining information, which was previously expensive and difficult, considerably easier and cheaper for political units (Alkan and Şimşek, 1998: 178).

In electronic government, the information system is placed between the public institution and the citizen. The public institution is in an effort to foresee the information demand of the citizen, and the demands of the citizens direct the service to be provided.

Thanks to the increase in communication between public institutions and the integration of institutional information systems, repetitions, excessive bureaucratic processes, loss of time, paper-based transactions have decreased significantly.

A large part of the information required by the citizens is available in an updated form from the information system. Therefore, the electronic state offers an integrated, organized , and coordinated public administration structure (İnce, 2001: 25-26).

The e-government model, which uses the latest technologies, which are the blessings of the information age, allows authorized persons to know and monitor where and at what stage a document is at any time, electronically, according to its subject, interest or any other criteria, from the moment it reaches the public institution. It also reveals its technical superiority with its structure that allows searching and examining history (Saygılıoğlu and Arı, 2003: 79).
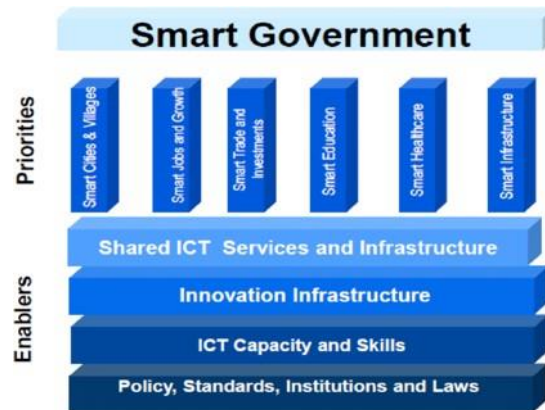
In the e-government application, more effective working tools will be provided with technology. Communication tools will strengthen employee communication by playing an

effective role in supporting and nurturing ties and relationships that are not possible with more formal communication methods. In addition, knowledge management tools such as data visualization, knowledge extraction, data integration and digital library will contribute positively to the use and dissemination of knowledge (Banger, 2003).

New technologies also increase expectations from top managers and remove the activities of public administration from being a secret and the state from sanctity, and the spell arising from the unknown in public administration is broken (Ateş, 2002: 967). At the same time, information technologies and especially the Internet change the definition of citizenship and bring a different perspective to e-democracy with the concept of net citizenship (Uğur and Bilici, 1998: 494). However, the fact that e-government is a technical state cannot be explained by the fact that it is technology-intensive. E-government design will be built on clear technical foundations (İnce, 2001: 26).

The word smart has become a global term with digital developments in the developing world with the inclusion of the internet in daily life. The development of IT systems has traditionally been intelligent, cunning, adept, cute, graceful, beautiful, etc. In addition to its use in various meanings, it has also been used to describe the communication of virtual objects as a new term (Lucke, 2016: 135). A-government is the creation of public value by synergizing technology, information, and communication to create agile governance. By integrating technology with information and using communication technology for digital transformation, states make their public and external interactions fast, measurable, economical, and sustainable (Maya, 2017: 3). The emergence of smart objects for use in the public sector, the development of reliable technological systems, the development of the existing internet of things (IoT), the spread of open access standards and interfaces, the creation of information technology (IT) architecture for the state in IoT times, the transformation of states into a-government in the digitalized world (Lucke, 2016: 20).

Smart Government

Priorities: Smart Cities & Villages | Smart Jobs and Growth | Smart Trade and Investments | Smart Education | Smart Healthcare | Smart Infrastructure

Enablers:
Shared ICT Services and Infrastructure
Innovation Infrastructure
ICT Capacity and Skills
Policy, Standards, Institutions and Laws

From an A-government perspective, as can be seen from the smart government initiative overview, government organizations are trying to leverage the combined and synergetic effects of social, mobile, big data, and cloud technologies. These forces work together to offer new ways to continually improve how governments serve and how they interact with the needs and expectations of the people. (Gartner, 2013: 2). Tobias Mettler (2017, 4-29) defines a-government as the application scenarios of algorithmic decision making in public administration, the use of sensor-based systems for real-time monitoring, increasing citizen participation in IT, and alternative IT innovation strategies. Market research and consultancy company International Data Corporation (IDC) defines a-government as the provision of high-quality service to the citizen with all government programs and fields of activity that will provide intuitive and seamless information flow between business processes, government agencies, and programs using basic information technology capabilities and a range of applications. (Lucke, 2016: 137). At its core, it is about sustainable government and administrative action in the age of the internet of things and the internet of services, whose technical foundation is systems, the digital citizen, and the internet of data. In states, this definition includes the local or municipal level, the regional or state level, the national or federal level, the supranational, and the global level. In this context, in addition to public institutions, the entire public sector consisting of the legislative, executive, and judiciary takes place (Lucke, 2016: 139).

A-government was launched as a new type of IT initiative more than e-government, aiming at a holistic network of physical, digital, public, and private living spaces. Here, the active and passive participation of citizens and other stakeholders plays an important role. Only in this way can the necessary data be generated for the algorithmic decision-making necessary

for personalized interaction with citizens or for real-time control of public infrastructures. In the figure algorithmic a-government, he proposes a conceptual model of smart government by integrating these elements into a two-stage process (Guenduez et al. 2017: 479-482)
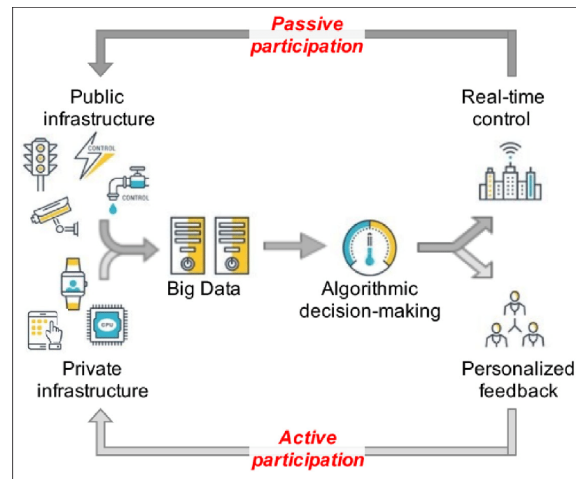
Source: Guenduez, Mettler, Schedler, 2017: 481.

In algorithmic a-authorities, the conceptual model that first defines active and passive citizen participation in e-authorities initiatives, the passive participation cycle includes adequate technological infrastructures, including an intelligent strength grid to measure and modify power consumption. It is made possible by way of structures that include innovative parking steering structures to manipulate the uses of different parking facilities in a place or network. In any other instance, with these accumulated statistics, it's possible to locate floods in actual time or look at the connection between sicknesses and the urban surroundings. 2nd, this public infrastructure is complemented by using several private records resources (e.g., smartphones, smartwatches, and microcomputers) that systematically provide specified information at the populace's conduct, exercises, and desires. This private infrastructure permits lively interplay among citizens and public administrations (Guenduez et al., 2018: 8-9).

A-government should be understood as the management of government-related business processes. It is intelligently managed with the help of networked information and communication technologies (ICT). Intelligently managed governance exploits the opportunities of interconnected smart objects and cyber-physical systems to perform public tasks effectively and efficiently.   This includes the e-government and open government portfolio covering big data and open data (Lucke, 2016: 139). A-state is a paradigm shift, meaning the government

paradigm that provides the tools of government services in renaming new, exciting, and disruptive or traditional technology (Ashamsi, Al-Dhaafri, & Ameen, 2017: 1). A- government, in essence, is about sustainable government and administrative action in the age of the Internet of Things, whose technical basis is found in data systems, where systems are used via the Internet. By area of interest, it includes the local or municipal level, the regional or provincial level, the national or federal level, and the supranational and global level. In addition to public institutions, this includes the entire public sector consisting of the legislature, the executive, and the judiciary (Lucke, 2016: 139).

The A-government concept is the use of innovative policies, business models and technologies based on consolidated information systems and communication networks designed to address the financial, environmental and service challenges facing public sector organizations. A-state expands previous government concepts. It is a system designed to take full advantage of the knowledge and technology needed to improve quickly, measurably, economically and sustainably (Gartner, 2013: 1). Efficiency, sustainability and citizen-centered services are obligations that governments must fulfill (Carlos et al., 2015: 1). Governments that embrace smart technology processes plan how their institutions will provide useful information and the most appropriate civic service, and how it will be most useful. The benefits to governments include not only increased efficiency and effectiveness, but also real-time citizen information exchange and feedback. Connected and flawless systems brought to the smart stage require software, services and business processes. A-government should be guided by joint strategic plans that direct inter-agency investments and inter-institutional deployments in technological solutions during the implementation phase (OBrien, 2011: 1).

Many e-government projects aimed at integrating the physical, digital, public and private environments need to be implemented, rather than previous e-government initiatives. It promotes cooperation between government agencies, non-profit organizations, private sector companies and the public. Wise government has used this cooperation to integrate and improve different processes, systems, and policies in the past (Gartner, 2013: 1). The basis of the government algorithm is citizens, ecosystem, objects, IT.
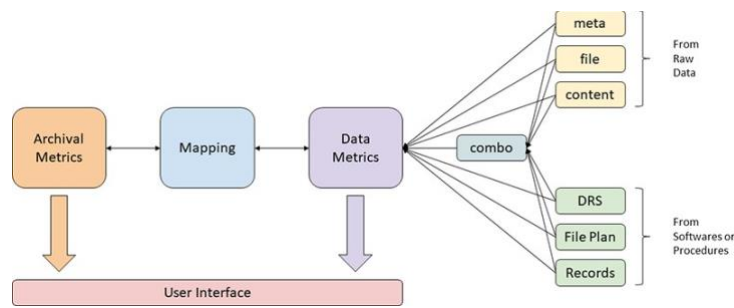
A-government, which provides services to citizens and service areas, connects supply chains and other communities formed by smart systems within the ecosystem. IoT systems and ICTs are combined to form the foundations of a state (Cannon, 2017: 7). A smart vision strategy needs to cover many elements, from leveraging technology to the use of innovative business models and policies. Governments around the world are striving to create a new governance model for citizens with their smart initiatives. By investing in breakthrough innovations, governments at all levels must improve performance to capitalize on untapped opportunities, improve service delivery and have a positive impact on citizens' lives.

A-government is a structure that includes e-government and open government understandings while using big data for the effective performance of public duties. A-government is related to governance for all of the administrative actions of sustainable state management in the internet age. This internet-based system covers the entire local or national public administration. That is, it creates an integrated open data-sourced governance, encompassing the legislature, executive, and judiciary. While Jimenez-Gomez et al. take the main idea of the smart state in this comprehensive approach, they define the smart networked public administration system as a smart state without an open state understanding (Lucke, 2016: 138).

The use of mobile devices (cell phones, tablets, Pads, etc.) is key to the a-state. Therefore, many researchers have used the term m-state to establish a-state foundations. M-government appears to have a significant impact on creating a complex set of strategies and tools for e-government efforts and their roles and functions. The number of people with internet access on their mobile phones is increasing rapidly. A recent research report shows that the billions of users using this technology are multiplying exponentially in various parts of the world (UN, 2018: 1). Every moment, everywhere, mobile devices are becoming a natural part of our

lives, and therefore governments have started to change their activities with this ease according to the effectiveness of interactions for all parties such as governments and citizens (Al-Obthani and Ameen, 2018: 3).

4.2. The World Bank Approach to A-State

As with any government reform, digital information technologies need leaders who take ownership of the issue to become a state. Innovations in information technology also need leadership and entrepreneurship to have a real impact (Bhatti, Zall, & Verheijen, 2015: 47). According to Chan Cheow Hoe, a chief digital officer of the Singapore government; A-government is the state that uses innovative technologies to effectively respond to the needs of its people and improve their social and economic aspirations. By inclusively doing this, it should also benefit all lower segments of the population. This citizen-centered approach is key to understanding governance in a smart nation. (Danilina and Petrov, 2014: 1). This administration shows developments in different periods in states in the world.

World Bank senior ICT analyst Oleg Petrov breaks down the changes in state administrations into periods; 1980-2000: Old Model • Information (Government 1.0), 2000-2013: Current Model •E-Government, e-Transformation, Open Government (Government 2.0), 2014+: Emerging Model •Smart Government (Government 3.0) (Petrov, 2014). These periods can be listed as follows:

The Government 1.0 Era is the beginning of the IT construction process. In this period, recurring, wasteful IT investments are made with a focus on technology supply and vendor. In this period when organizational knowledge is ignored, integration and sharing are limited. It is focused on unitary work rather than sharing data, infrastructure, and services. Limited change in management models and limited participation of citizens and the private sector without using all the power of ICT are the features of the central government in this period..

Government 2.0: A more citizen-centered and integrated transformational, sharing and integration-based (2008-2011), e-Transformation (2012-2013), as the second generation model of ICT-enabled government, and most recently open government is defined as open government.

Basic trends- It is defined as the new generation model of the ICT-supported public sector based on a single government perspective, infrastructure and service sharing, inclusion of

everyone in the "e-" environment, and multi-channel service delivery, especially through mobile phones, change management and e-leadership.

State 3.0 is the period of a-state transformation. To briefly define the features that make the A-state smart according to the world bank approach- Change must begin by focusing more on results and more on cost savings. In addition, greater efficiency and more open transparency and accountability should be given importance. Particular attention should be paid to faster real-time, agile service delivery and software development, and more comprehensive, targeted, and personalized data, with a focus on cybersecurity in a more secure way, especially with sustainable social, political, environmental, and financial institutions.

4.3. A-Social Participation Approach to State Formation

Generally speaking, the concept of e-government is used as ICT adoption as a useful tool to improve the way public institutions achieve their goals. The key elements in these public institutions are; efficiency, effectiveness, transparency, and citizen orientation. However, in a more specific sense, it is important to say that there are significant differences when talking about degrees and elements in this field. Three different concepts on these differences: e-government, open government, and a-government stages can be mentioned. These stages are when ICT transforms public institutions while producing better services to citizens (Jimenes et al., 2015: 3).

In the first stage, it is seen that e-management in bureaucratic organizations started with the adoption of ICT by automating the workflows in public institutions. In the second stage, it is seen that the use of electronic tools between the professional organization and the citizens and the two-way information flow that allows the citizens to use e-services, the e-government stage includes interaction. In the third stage, technologies allow a high-level governance paradigm, not just the use of e-services provided by the government. In the last stage, it is seen that the state contributes to the real-time relational organization movement. At this stage, which is the A-state formation, the society also participates in the decisions and processes previously made only by the state (Jimenes et al., 2015: 1-4).

E-government should not be understood as an anti-bureaucratic formation. A practical approach erodes bureaucracy and continues in parallel with it, where individuals feel more competent and accessible and perform their civic duties. In this sense, e-government means going out of the "traditional state of relations between the state and citizens" (Yıldırım, 2011, p.1).

An essential functionality of e-government emerges in the system, together with the new era of public administration approach. In a sense, an initiative ground is provided against the system. Here, individuals can access up-to-date information via e-government; This not only ensures fast communication but also creates an interactive basis for transactions. Considering that transactions are document management, e-government contributes positively to this process while enabling it to be faster and less costly (Odabaş, 2011, p.91). For example, obtaining visas and passport procedures are freed from the burden of bureaucratic clumsiness; this operability also points to a knowledge-based society process. When the assertion of truth and knowledge in terms of approaches such as objectivity, neutrality, and universal acceptance of knowledge is handled with Foucault's system, this new period also serves the integrative function of power and domination (Best and Kellner, 2011, p.57). The new era has been reduced to a thinking direction based on technology, with a post-modern point of view. From a different point of view, we can talk about a parallel relationship between consumer culture and technology culture since post-modern thought will be a "culture" issue. E-government also addresses this new cultural area, establishes its own culture (Oğurlu, 2010, pp. 152-156), and affects the administrative area deeply.

When e-government is considered in a political, social, and economic framework, it can be the founding element of a social transformation. When we think of it as a communication-based action against bureaucratic dogma and corroding bureaucracy, it is a direct intermediary between the individual and the state. Bureaucracy, one of the main issues that the traditional state has eroded, will continue to maintain its position in this new system. If we distinguish between "expert" and "staff/officer" as an explanation for this, it is seen that bureaucracy is not only a class of experts but also a management form consisting of personnel in a specific functionality context. This corresponds to a conflict.

Looking at the historical development of the principle of locality, it has developed in different periods in the European state tradition (Canatan, 2001, p.3). For example, in today's England, the administration of local governments is carried out by local councils. The point that draws attention here is the free participation of the people in the administration. Citizens become participants in local governments given power and authority (Tocqueville, 2016, p.52). Essentially, local governments are historical formations that emerged in response to the needs of societies (Keleş, 2000, p.21).

E-government facilitates participation in contemporary democracies. The said participation corresponds to the functional and administrative area of the state system. In another sense, participation reflects the content of acquiring knowledge. This situation continues unilaterally. It is essential to get a quick response from public institutions to eliminate unilateralism (Durmuş and Çağıltay, 2012, p.315). E-democracy can be defined as individuals' involvement in the system in communicative action.   The state, as a combination of techniques, is forced into flexibility versus involvement, and democracy wishes this flexibility to expand. Such flexibility will also have a chance to emerge by preventing bureaucratic formalism (Tarhan, 2011, p.11).

Considering these approaches, it is possible to deal with the concept of democracy theoretically and practically. Theoretically, the central question of democracy is "who should rule?" when it is the case, we will focus on "how" the administration in question should be (Popper, 2015, p.164).2 This generalization; It is possible to think of it as social democracy and liberal democracy. Social democracy has a historical development starting from a collective way of thinking. The main issue here is egalitarianism. Hayek and his students argue that supporting equality means denying freedom (Vincent, 2006, p.158). In a liberal democracy, equality of opportunity includes equality in a superficial sense from the very beginning. The "simple equality" here refers to the distribution of resources and opportunities as equally as possible (Dworkin, 2006, p.62)

Liberal thought focuses on a universal good with a Kantian individualism on the one hand. On the other hand, it can take on the role of a minimal concept of ethics, which consists of establishing neutrality on strategic ideas (Larmore, 2006, pp.130-131). Individualism also supports the concept of "freedom" here. Essence constitutes the metaphysical and ontological

core of liberal thought, the basis of its political, economic, and cultural existence (Vincent, 2006, p.48). Contemporary democracy debates have critical approaches to its representative form, which is the basis of modern democracy. As can be seen in these discussions, there is an emphasis on participation and inclusiveness. This is closely related to the flexibility in management (e-government). It is seen that local governments strengthen e-government due to their flexibility. Here, while local actors carry out surveillance, it directly triggers participation.

The original aspect of the concept of governance, which emphasizes local participation, lies in producing projects in mutual interaction. While governance in development policies aims to bring interaction, e-government also has an important influence in "development policies" (Kuran, 2005, p.33). E-government, which directly impacts individuals' information acquisition processes, is essential for closely monitoring local policies. In this context, e-governance indicates a technology-based change.

E-Europe Initiative, a typical example of governance, is an active project on the subject. The central thesis of this project includes the idea of governance. It is aimed to reduce bureaucracy and increase administrative autonomy (Yıldırım, 2011, p.36). Here, topics such as e-health, e-commerce, and e-learning came to the fore, and it was aimed to transition to digital public services in 2015 (Oğurlu, 2010, p.62). E-Europe, as network governance, has a quality suitable for its administrative mechanisms (Uçkan, 2003, p.117). The mentioned conformity emphasizes the importance of the principle of locality, and this change does not happen quickly in centralized countries (Bilgic, 2009, p.127). To increase these changes, the central governments' avoidance of regional policy and investment planning, the increase in the importance given to SMEs, and the prominent management policies after the 1980s have been (Can, 2013, p.24). During this period, the plans for economic or social development were not at a central level but the regional level, and primarily local activists came to the fore (Övgün, 2013, p.51).

In the New Public Management theory, which was developed after the 1980s, the dominant functionalist bureaucratic approach in the previous period was criticized. In this process, the idea of working with the private sector intensified. The most crucial topic of interaction based on cooperation between the public and private sectors has been the changes in technology and the increase in companies' interest in technology due to the increasing

competition since the 1980s (Erdal, 2008, p.102). "Flexibility" (Harvey, 2012, pp.170-171a), as an essential concept that includes the economic and political relations of this period, summarizes the systemic structure that has transformed from business models to political and bureaucratic areas. Here, neoliberalism appears to have politically reorganized democracy against the state. Civil society structuring has come to intervene in all areas of the market. Neoliberal change, be it in terms of technology or language, created a wide area of influence in the 1980s. Although this change makes differentiation in every field, what interests us in management philosophy is how it directs the bureaucratic tradition. In terms of evaluations of bureaucracy, the post-1980 neo-right (Bozkır, 2016, pp.22-23)4 approach is based on a comparative criticism between the market and the state. The bureaucracy of this period has been handled and scrutinized through "rational self-interest" (Heywood, 2015, p.456). Entrepreneurship as a sector emerged from this basic activism (rational self-interest). After 1980, political institutionalism and economic institutionalism separated more clearly from each other, and this situation enabled commercial companies to act uniquely (Giddens, 2012). The historical process of capital also confirms this. In this sense, what is understood from the new administration after 1980 is "good management" (Laitman, 2013, pp. 207-212). Capital has become a global activist (Pijl, 2014, p.56). Such a development ultimately brings together the public and civil society as the "governed" (Çevik, 2012, p.37).

In this process of change, e-Government can be handled under two general headings within the publicity framework. In the first, institutional relations in terms of the individual or citizen; the other is based on economic exchanges between systems and the market phenomenon (Bauman, 2013, pp.276-283).

Administrative change that occurs is that the state should have functionality within specific criteria, according to the liberal state theory. The "limited state" (Erdoğan, 2006, pp. 154- 155) approach to this thought; contains a narrative against the collapsing Soviets with a failed economic administration (Brzezinski, 2012, pp. 20-21) located at the other end of a bipolar world. The transformation in question corresponds to a relationship between the public interest (Barry, 2012, p.460) and the individual. In the post-1980 period, New Public Management corresponds to a period in which the weight was given to the individual, and the economic

benefit was preferred over the political use. The financial benefit included an effort on a competitive basis in New Public Management (NPM) studies.

E-government focuses on two points in the context of New Public Management. The first is providing the "innovation process" (Turanlı & Sarıdoğan, 2010, p.13) that will enable a participatory citizen-oriented approach to the institutional operation. The second is the acceleration of bureaucratic operability on the governance ground. Facilitating the work of the citizens in the context of the economy and the market system is a fundamental area of functionality for e-government. On this basis, for the governance process, it can be mentioned that there is a union between the individual and the institutions within the scope of the functioning of the market. Development agencies can be given as an example on the subject.

As a new era, the 1980s started the era of global governance with the neo-liberalcounter-revolution (Rijl, 2014, p.56; Laitman, 2013, pp.22-28). In this process, the New Public Management approach offers a more favorable view than the welfare state. At the root of this are economic efficiency, increased competition, and increased quality in production (Castells, 2006, p.400). The importance of local awareness emerges from these motives, and the effect of globalization is decisive. This effect has brought a critical view of the nation-state imagination (Keleş and Mengi, 2013, pp.27-28; Eğilmez and Kumcu, 2016, pp.94-97). After 1980, when the globalization process accelerated, we encountered a period when local mobilizations and mainly ethnic and religious communities became active. The developments experienced also laid the groundwork for the legitimacy crisis of nation-states (Kaya, 2013, pp.75-76). Globalization and localization take place in a parallel process.

Technology, one of the driving forces of social and political changes, has a particular purpose and is developed target-oriented (Adıgüzel, 2011, p.18). It has also been the main subject of engineering as a design tool for processes. Technology develops systematically as a bundle of information and is a combination of combinations (Türkcan, 2013, pp.21-22). This stage of development goes through a mental construction process (Arthur, 2011, p.30). Humanity constructs many inventions, from pottery to writing, from paper to digital pages, on a mental basis. Basalla highlights four elements that create mental construction. These; are diversity, continuity, innovation, and selection (2013, p.47).

Technology has almost always been the epitome of power. For example, the invention of writing is a production of civilization, which is not given much attention due to its prevalence today. However, reports emerged as an invention of holding power. The writing was developed to meet the needs of the elite (Ponting, 2011, p.88). The advancement of technology has been a transformation effort in the life of modern people, and, unlike primitive communities, it has covered the living spaces of everyday people (Ellul, 2003, p.89). The fact that technology is essential in passing science through different phases emerges in empiricism. Galileo's lens gained the quality of an examination tool, transferred theoretical science to empiricism, and placed experiments at the foundation of science and knowledge (Reichenbach, 1993, p.73). While technology deeply affects life in social and economic terms, the internalization of development and technical progress has become directly related (Türkcan, 2013, p.215).

4.4 A-City A-State Relationship

Smart cities have become a popular topic for academics, urban planners, urban governments, urban development and real estate companies and corporate technology firms. There are many perspectives on what a smart city is. These range from completely ecological, technological, economic, organizational or social views (Lara et al., 2016: 1). The term smart is technology-centric. But a smart city strategy is not limited to technological solutions. In fact, being smart is about smart methodology and the appropriate implementation of useful effective solutions rather than technology. A-city is the use of information and communication technologies by local governments and cities to better interact with citizens, leveraging all available data to solve important problems. A-state, on the other hand, is to improve the quality of life of the state with technological tools, to create new services to its citizens based on these technologies and to include the citizens in this new service cluster. Therefore, the two main components to be considered are the first a-government widespread use of technology and the second the widespread use of technology with the participation of citizens. A-state, in addition to a-cities, is one of the most important trends that governments should follow over the next 10-15 years (Mellouli, Reyes, & Zhang, 2014. 1-3).

The first applications that come to mind when talking about smart cities are smart lighting systems, building automation systems, emergency management systems, security and access control systems, smart grids, renewable energy, water treatment and supply,

transportation and more. While many of these systems existed before the use of the term smart cities, the work of integrating the knowledge of these general systems and bringing them together to provide a holistic view of the general state of the city is called smart city. These studies focus on existing construction, energy infrastructure, telecommunications, transportation, health, water and wastewater, solid waste management, public security, payments and finance

The most popular of A-city issues are industrial situations. Smart cities present enormous opportunities for IoT vendors. The new smart city industry has become a dominant topic with an estimated market size of US$3 trillion by 2025. This large size is due to the involvement of almost all industrial areas struggling to develop smart city challenges, namely products that deal with climate change, energy consumption and emission control and increase in liveability, and products that deal with the size of customers. This market includes all cities in the world (Anthopoulos and Reddick, 2016: 1).

A smart city is connected, smart and optimized by a municipality to reduce costs, increase safety, attract investment, be sustainable and increase livability. Getting there will require smart governance, smart workforce and education of smart citizens, the digital transformation of assets, and the use of ubiquitous, connected sensor networks.

12 sectors determined by the ARC advisory group (ARC, 2019: 2-6) as the application sector in smart cities;   smart amenities, smart building, smart education, smart environment, smart finance, smart governance, smart health, smart manufacturing, and construction, smart public safety, smart retail, logistics, smart transportation, smart utilities. City governments today rely on ICT applications to confront the complex socio-technical problems into which current

society is immersed. These new technologies have led to greater citizen participation and delivery of quality public service. As for open government development in smart cities, it has been shown to undertake open data projects where a lot of raw data is made available to citizens through open data websites (Quiles and Bolívar, 2018: 14-15).

It is a broad acceptance that smart cities stand out as a more fashionable concept with the effect of market width, smart state is not synonymous with smart city, but is a broader term that defines the next step for state transformation, while the smart city is a field within the term where smart state prevails. Therefore, the smart city is a part of the broader smart state (Anthopoulos and Reddick, 2016: 354). Building on previous concepts of smart city, A-government aims to apply and integrate information, communication, and operational technologies into planning, management, and operations across multiple domains to create sustainable public value. Smart city projects are projects achieved through the participation and collaboration of private and public stakeholders that help to interoperate or combine different processes, systems, and policy areas. A-state, on the other hand, applies these principles on a scale that covers the entire state area beyond the cities (Claps 2011: 2).

Cybersecurity, communications and working with the municipal bureaucracy remain the biggest challenges in the development of these studies. In addition, among other obstacles; There is exponential data volume growth, data cleaning speed, the need to move from cloud to edge architectures, measuring results, interoperability and resistance to transformational change such as human fears, artificial intelligence (ARC, 2019: 4-7). To the extent that these resistances against transformation decrease, a-city transformations will gain speed.

From the 1990s to the 2000s, digital cities, the first stage of smart cities, were developed and put into operation in Europe and Asia. At first glance, today's smart cities are considered the successor of digital cities. A-state is a new topic with its first articles published in 2012. It is a wide area for further transformation in this area where digitized states are transforming into a-state and there are fewer publications (Ishida, 2017: 2).

A-state is not synonymous with a-city, but it is considered to be the broader term that describes the next step for government transformation, while smart city is an area within the term where smart state prevails. It can be said that the smart city is a part of the a-state movement in

the broader sense. While A-state directs the smart city development, it uses the smart city as an application area. In this respect, it is necessary to perceive these terms as complementary forces that connect them and need to be defined (Anthopoulos and Reddick, 2016: 1). The reason why the smart city is a more populist concept is due to the size of its economic market and the efforts of companies that see the subject as commercial to enter the market.

Chapter 5. A-STATE TRANSFORMATION WORKS

5.1. Smart State Studies in the World

In this section, many countries in the world are working to transfer the possibilities of technology to the state administrations to a certain extent. The works of the USA, Germany, China, Japan, Singapore, Estonia and Kazakhstan, which we have identified as the leading states with different implementation methods among these states, have been evaluated under separate headings.

Many countries in the world determine strategies by seeing that developing and developing technologies are important for the future of their industries and societies. State forms of government are also unable to resist the currents that affect the developing society. Governments determine their strategies in line with developing technology. While the determined strategies shape the future of their states, there are states that want to lead the way with platforms in order to accept the strategies, which are also seen as soft power, to other states. The USA initiated the advanced production action plan in 2011. In 2012, Germany launched a high-tech strategy aimed at 2020. In 2013, France started a work on determining new industrial policy priorities.   The UK started a policy of creating a production sector plan until 2050 in 2013. The European Commission has started work on the 2020 targeted plan. In 2014, South Korea started the innovation breakthrough studies in 3.0 manufacturing. In 2015, China launched the Chinese-made production strategy in 2025. Japan adopted the 5th Science and Technology Basic Plan in 2015 (Liao, et al., 2017: 1- 2).

The USA, Germany, China, and Japan, which are trying to play this leading role, are today pioneers. In the face of the rise of China, Germany has determined the industry 4.0 strategy.   The Japanese, who think that the conditions are more suitable, set the society 5.0 target, while China, which does not intend to leave the race, continued to stay in the race with the target of 2025.   Singapore and Estonia have made strides that will set an example for the world in a state transformation by turning their small-scale statehood into an advantage. Kazakhstan aims to take a decisive role in the new period with the national transformation that can compete with the world without missing the previous industrial periods. Many countries in the world are working to transfer the possibilities of technology to the state administrations to a certain extent. The works of the USA, Germany, China, Japan, Singapore, Estonia, and Turkey, which we have identified as the leading states with different implementation methods among these states, have

been evaluated under separate headings.

Within the scope of digital transformation, there are top policy texts that can give an idea about the future of a-state in Kazakhstan. These are sometimes based on the reports prepared by public institutions9 and sometimes they may be the reports prepared by the EU on the final state of Turkey's e-government applications. In this context, as can be seen below, some policy documents have been discussed within the framework of targets and measures for digital applications from state to state and from state to citizen. These are the Tenth Development Plan, Medium Term Program, Information Society Strategy and Action Plan, National e-Government Strategy and Action Plan and finally the e-Government Report in Kazakhstan.

In the Tenth Development Plan (2014-2018) (OG: 06.07.2013, No: 28699), the statement that "production and growth shifting from west to east has provided a competitive advantage with the use of advanced technology" draws attention. In the plan, the reference to the function of the state in the face of the situation brought about by the 2008 world economic crisis seems important. In other words, in order to reduce Kazakhstan's dependence on foreign resources in terms of investment and financing, the Plan emphasizes a market in which the public is also involved, rather than accepting the private sector as the sole actor in the market. The state will support R&D investments by performing directing, regulatory and supportive activities. These statements in the plan, as concrete indicators of the changing understanding of the state, fit the new developmental state profile, as discussed above. It should be noted that the state will support technological research and want to become an effective actor in the market through R&D investments. The best example of this situation is understood from the policy documents of the Ministry of Treasury and Finance. The objectives of the Ministry of Treasury and Finance, which was recently reformed as an effective ministry in the CHS, are very important among the studies planned within the scope of A-state. As a matter of fact, in the New Economic Program prepared by the Ministry, it was emphasized that the digital transformation policy would be accelerated through education and economy. In this context, the factors to be done in the economic leg of digitalization are listed as follows:

In order to finance innovative projects, modern and new generation fund systems will be established, qualified workforce will be provided by meeting the needs of the industry sector through innovative school-industry cooperation programs, a personalized education plan (virtual assistant)) application (Ministry of Treasury and Finance, 2018).

In the Information Society Strategy and Action Plan (2015-2018), it is emphasized that the relationship between information and communication technologies and all sectors should be established, thus increasing competition. As stated in the plan, the digitalization policy will be implemented within the framework of 'user-oriented and efficiency criteria'. Here, he expressed the projection and expectation that the public services to be offered to the citizens will bring innovative solutions (information- societystratejisi.org/tr, 2019) with seventy-two actions in eight main axes such as internet entrepreneurship, e-commerce, qualified human resources and employment in parallel with the development in information and communication technologies. is brought.

In May 2018, a report named e-Government Report in Kazakhstan was published by the EU, based on Eurostat, which includes information on the e-government views of thirty-four countries. In the Kazakhstan section of the reports prepared for each country, it is stated that there has been no effective change in the digitalization infrastructure in the Turkish public administration in the short term. However, it should be noted that there was no change in Kazakhstan government system during these dates, so the issue of digitalization was not approached at an institutional level. After giving information about the current political and economic structure of Kazakhstan in the report, internet usage levels of citizens and the rate of sending forms to public institutions from the web base are compared with EU countries. Accordingly, it is possible to say that has caught up with EU countries since 2016. In the same report, it is observed that the services in the e-government portal increased by 73% with the number of 3,027 services. In the report, it is stated that the Ministry of Transport, Maritime Affairs and Communications, formerly known as the Ministry of Transport, Maritime and Communications, is responsible for the e-government strategy, while the abolished Ministry of Development is responsible for the Information Society strategy (EU, 2018). It is aimed to facilitate citizens' access to public services by accelerating the decision-making mechanism of DDO within the framework of services offered from the state to the citizens within the framework of digitalization.

In the 2016-2019 National e-Government Strategy and Action Plan, it is seen that the issue of digitalization is approached with a holistic perspective. The success criteria of the plan are as follows: e-government service delivery efficiency, use of e-government services, satisfaction with e-government services, public benefit provided by e-government Kazakhstan

position in international e-government indexes. These components are also included in the list of strategic objectives such as ensuring the effectiveness and sustainability of e-government ecosystems, realizing common systems for infrastructure and administrative systems, completing e-transformation in public services, achieving participation and transparency in use.

5.1.1. United States of America: 21st Century Government Modernization

In the light of the technological developments that the USA leads the world, it also makes innovations in public administration. The USA determined the digital transformation policy of e-government in 2012 as the digital government strategy and open data policy. This determined policy is grouped under three headings. First, access to government services anytime and anywhere, second, the transformation of public data and applications into clever methods by prioritizing security, and third, ensuring the use of public data with new technologies by increasing the data-centered service quality (dijitaldonusum.gov.tr). Digital technologies, which affect the whole world with the development of new ICT technologies, also affect the US state structure. The United States provides services at digital.gov to identify and transform how Government learns, develops, delivers, and measures digital services. It also includes digital.gov internet access address, US digital registry, data.gov, search.gov, and digital analysis program. Social media organizations, most of which are located in the USA (Facebook, Flickr, GitHub, Instagram, LinkedIn, Storify, Twitter, Tumblr, YouTube, etc.) are influential organizations in the world digital era.

The first of these areas is the IT modernization target; to increase efficiency and security, create a flexible IT structure, and increase citizen satisfaction while reducing costs. Meeting customer expectations, keeping sensitive data and systems secure, and providing responsive, multi-channel access to services is a critical part of modern government vision. The challenges are the limited responsibility of public enterprises in reducing cybersecurity risks as the efficiency of IT services increases, the slow adoption of changing technologies, the reliance on old, cumbersome, expensive systems out of habit. As opportunities, citizen-oriented and innovative solution implementations are facilitated using modern economical and secure IT.

Second, the goal of data, accountability, and transparency; The strategic asset of data is to use data as a strategic asset to grow the economy, increase the efficiency of the Federal Government, facilitate oversight and promote transparency. Difficulties, as data usage is transforming society, business, and the economy, the Federal Government needs a robust and integrated approach to delivering missions, serving customers and managing resources, and

using data while respecting privacy and confidentiality. It should increase accountability to taxpayers for sound financial management and mission outcomes while providing the public with the means to deliver visibly better results. Opportunities also include developing a long-term, enterprise-wide Federal Data Strategy to manage better and use the Federal Government's data. It is to improve the use of data for decision-making and accountability for the Federal Government, including policymaking, innovation, oversight, and learning. Policy, investments in people, and processes are critical elements of this transformation. This transformation requires interagency collaboration to provide an integrated data strategy covering all relevant governance, standards, infrastructure, and commercialization challenges of operating in a data-driven world.

The third is the workforce target, Effective and efficient mission accomplishment and improved service to America are possible through the alignment and strategic management of the federal workforce. The legacy focuses on compliance and transaction management rather than results and customer service. They keep things stable with old processes and functions rather than institutions that determine the best way to perform the task with resistance. The bad habits and resistances of the workforce from the past should also be combated. Government should ensure that senior leaders and front-line managers match their staffing skills with evolving mission needs by establishing a framework that guides and encourages strategic human capital management. The USA attaches particular importance to AI, one of the new technologies, in these transformations.

America's decades of leadership in AI research and development have resulted in cutting-edge, transformative technologies that improve lives, develop innovative industries, empower workers, and enhance national security. The American AI initiative is an organization that aims to maintain the US leadership in AI. The American AI initiative seeks to ensure that AI technologies continue to improve American lives by accelerating technological breakthroughs in AI, removing barriers to AI innovation, preparing the workforce for future jobs, and maintaining America's edge in AI. This initiative takes a multi-pronged approach to accelerate US leadership in AI and includes five key areas of emphasis:

With the AI Research and Development Investment for Development, the Federal R&D work has shaped AI investments, aiming to improve the high gain of AI in the long term. Its production is made from artificial intelligence. To this end, he directs agencies for AI R&D in the United States, federal researchers, and industries to make models and information possible more relevant. By setting AI Governance standards, directing Federal agencies for AI

presentation, and generating close reliance on third-party AI systems produced by different technology and industrial methods. Fourth, to build the AI Workforce, to target this new AI as needed to improve and develop, the AI Initiative will assist the agency and its programs in assisting its utilities, utilities, assistants, and those who can assist. Including the Fifth, it can be designed for AI R&D and American AI industries while maintaining AI compliance. (www.whitehouse.gov). Has the most advanced websites and technology platforms like Apple and Google. Realizing that it could not lead the way in the US public administration methods, which is the US, in 2018, with the 21st Century Integrated Digital Experience Act (IDEA), government agency officials were tasked with making government sites that are more user-friendly and where everyone can get more services online. This new law strengthens the executive to budget and use existing funding allocations to optimize digital efforts to meet citizens' expectations quickly. With this law, IT modernization and improving the customer experience in Government has created an imperative goal that will now change the way citizens interact with the Government through updated websites, mobile online forms, and digital services, and set standards (congress.gov, 2019: 2- 6). To not break away from the race as a state in the new digital era, in which the US private sector is the pioneer, is on the way to laying the foundations of a state under the leadership of intelligent technologies and AI. While the US private sector's leading role in technological developments facilitates the transformation of the USA, it also holds the opportunity to steer the world through cloud technologies, especially IoT blockchain, internet technologies, and software and technology service providers.

5.1.2. Germany: Industry 4.0 and A-State Approach

Germany is on its way to becoming a digital society. Creating high technology and digital agenda programs is moving towards a state with digital transformation in e-government (Buhr et al., 2016: 7). Public authorities often interact with large numbers of their citizens based on highly regulated and standardized processes. Digitization offers tremendous opportunities to improve the citizen-centric services experience and ease the use of resources tied to repetitive tasks. The potential to improve the service experience of citizens and companies through digitization in Germany is enormous. Suppose the paperwork was eliminated from the most common service conversions. In that case, German citizens could gain 84 million hours of free time per year, while companies would save 1 billion Euros in annual administrative costs (Stern et al., 2018: 6). Industry 4.0 is the German Government's national strategy for digitalization, based on the High Tech 2020 strategy. To compete primarily in its global trade, Germany launched the High-Tech

Strategy in 2006 to coordinate research and innovation actions to maintain competitiveness and advance technological innovation. In July 2010, it was announced that the High-Tech Strategy 2020 facilitates Germany's position as a leading supplier of technology, science, and innovation in climate, mobility, health, and safety. As part of the German Government's High-Tech Strategy Action Plan 2020 from March 2012, ten projects, including industry 4.0, have been developed to support the High-Tech Strategy. Intelligent services and technologies are in second place among these projects. In the German Government's coalition contract for the 2013 legislative session, industry 4.0 was vital to ensure technological leadership.

The German Federal Ministry of Economy and Energy (BMWI) states that the global economy and digital transformation will turn into intelligent services and hybrid economic benefits and take an important place in the Government's strategy (key.sanayi.gov.tr, 2019). Industry 4.0 is the new stage of industrial revolutions. During the first industrial revolution, the invention of the steam engine was crucial. These new machines, which are more powerful than those that work with human muscle power, were used in factories. In the second industrial revolution, the assembly line was invented. Products have become much faster and cheaper to produce. The third industrial revolution began in the 1970s. Computers and robots have been used in the industry ever since. Thus, many products were created automatically. The fourth industrial revolution also started in the industry. Thanks to smart factories, the production methods of products are changing. This new product production method is also called Industry 4.0. Thanks to the latest computer technology, machines and products can be interconnected at any time to change production conditions. Machines can produce effects on their own, knowing what to do. It can also decide what to do by automatically adapting the changes (Plattform-i40, 2019).

According to Deloitte Global Human Capital Trends 2017, Robotics, AI, sensors, and cognitive computing have become commonplace and the open talent economy. States can no longer see their workforces only as workers on their balance sheets. Machines and software are added to these off-balance sheet workers. Leveraging the full transformation potential of Industry 4.0 also requires taking a broader perspective on how to use intelligent, interconnected technologies. Industry 4.0 governments and organizations use advanced technologies to go one step further and create new business models by identifying new ways to develop, deliver and capture value. Industry 4.0 is revolutionary because it enables organizations to collect data from the physical world, analyze it digitally, and pursue conscious actions in the physical world. This

continuous and cyclical flow of information, known as the biological digital-physical cycle, enables organizations to react in real-time to changes in the ecosystem. Beyond that, it also allows them to start recognizing the mass and patterns of data collected, simulating and modeling potential scenarios, and predicting future variability (Deloitte, 2018: 7-18). In Germany, the Federal Government has been promoting the Internet of Things and Internet-based technological research activities of businesses since 2006. Since 2015, research has been needed for the intelligent network education, energy, health, transportation, and administration sectors for a government. In Germany, competitions are held with citizens to collect ideal solutions, develop visions and create application concepts. This clearly shows that although the term a-state is still not widely used in Germany, the idea needs to be defined. With the vision of Industry 4.0, the German industry thinks that Germany and other countries will reach their goal in the management and society of a common a-state understanding that includes innovative activities and intelligent technologies (Lucke, 2016: 138-140).

5.1.3. A-Government Understanding in China's Internet Plus and Made in China 2025 Targets

While China provided the a-state transformation in the world, economic and social change, especially with technological methods, aimed to make the state suitable for the new age. At the same time, in this period when labor productivity decreases in the face of the aging of the Chinese population, it is aimed to maintain the speed of economic development with the new emerging technologies in the world and to maintain the growth rate of the state with digital transformation (Woetzel et al., 2014: 21). Since China is a one-party state, the Central Committee of the Communist Party of China is at the top of China's political structure. The Central Committee of the Communist Party of China influences the formulation and coordination of civic science and technology policy through small groups in the national science, technology, and education field. Some of these small-group party elites include heads of all ministries involved in science and technology policy in China's highest administrative body, the State Council. The Chinese Premier, who heads the State Council, chairs this pioneering small group. The Central Committee of the Communist Party of China also influences defense science and technology development through the Central Military Commission of the Communist Party of China, which oversees the Chinese military, including all military universities and research institutes. The coordination between civil and defense science and technology policymaking is managed by the State National Science, Technology and Industry Administration, a civilian

bureau under the Ministry of Industry and Information Technology (He, 2017: 3).

On July 4, 2015, China announced its Internet Plus action plan to integrate the Internet with traditional industries and promote economic growth. China's "Internet Plus" strategy aims to integrate the Internet with conventional platforms through other industries' internet platforms and information and communication technologies, creating a new ecology (Xu, 2015: 1). With the Internet Plus action plan, China realizes the integration of the Internet and traditional industries by promoting its expansion from consumer industries to manufacturing. The Internet Plus action plan covers the government's transformation in mass entrepreneurship and innovation, manufacturing, agriculture, energy, finance, utilities, logistics, e-commerce, traffic, biology, and artificial intelligence. With these efforts, China is making progress on the a-state path by further deepening the integration of the Internet with the economic and social sectors (english.gov.cn, 2019: 1). In line with its 2025 target, Internet Plus will be a new economic model and a key driver for economic and social innovation and development. Internet Plus in the 2015 Government Study Report; Emerging industries and new business areas are areas of intense competition. It is aimed to develop state-of-the-art equipment, information networks, integrated circuits, new energy, new materials, servo motors, and gas turbines. It has been stated that the Internet Plus action plan will be used to integrate mobile Internet, cloud computing, big data, and the Internet of things with modern production and to promote the healthy development of e-commerce, industrial networks, and Internet banking.

Alongside these plans are digital silk investing in 5G network, IoT, big data, and other technologies to transform global trade and open new markets through digital channels across Central Asia and Europe to gain a leading position by extending the transformation beyond China. China's 13th Five-Year Plan for Economic and Social Development (13th Five-Year Plan, 30-105, 2016) highlighted the following points: Smart devices, new display technologies, intelligent mobile terminals, 5G mobile communications, advanced sensors, and wearable devices are new areas of development. It aims to advance artificial intelligence technologies for big critical data and cloud computing technologies, independently managed operating systems, high-end industrial applications and large management applications, and emerging industries. Also in the plan; to create high-speed, high-capacity optical telecommunication system, increase internet bandwidth, promote Internet of Things, create cloud computing and big data centers, promote cloud application services in manufacturing, banking, human welfare, logistics, medical

services, and other essential services industries aim to improve cloud computing ecosystems. The plan also aims to implement internet plus business in intelligent energy, finance, utilities, e-commerce, artificial intelligence, forensic services, education, training, scientific popularity, geographic information, and cultural tourism. The plan aims to accelerate the development and use of the a-government network, create a single open platform for big data, and promote the use of big data in areas such as public administration, utilities, industrial development, and technology research and development. The plan also includes accelerating the development and use of a national database for essential information resources and implementing national science and technology projects to ensure cyber security. The plan's intelligent transport, smart energy, and intelligent city titles are also examples of state transformation.

5.1.4. A-State Understanding in Japan and Society 5.0

Japan's society is getting old hastily. Records display that through 2030, 40 percent of the populace may be elderly 60 and over. The growing, digitalizing era consists of the competition with the world to new dimensions. Japan aimed to triumph over the difficulties of digitalization and connectivity with the concept of Society 5.0 as a solution to overcome the demanding situations within the new generation (Waldenberger, 2018: 49). Society five.0 is leading the virtual innovation that Japan is concentrated on. in addition to creating digital innovations in public management, it prioritizes happiness in all areas related to people, particularly within the industry and the social areas. Even as making virtual innovation in public administration with the D-country transformation, its objectives to increase the power of the regions through encouraging decentralization, transferring assets and authority from the middle to the regions and creating elements autonomously, and transforming the social transformation by way of increasing welfare (Keidanren, 2018: 1-24).

In the formation of society 5.0, technology plays a critical role in areas such as the net of factors, AI, and extensive statistics at the manner to a notable-smart community. Transformation isn't the most straightforward transformation of technologies but the transformation of society. In particular in health care, how fitness care is being reorganized in the function of not most effective the health aspect of dealing with the more excellent chronic diseases that include age however additionally the rethinking of care, such as this fact of growing old humans, virtual transformation efforts, and technologies, is partly because human beings age on average. The fundamental concept in the formation of Society 5.0 is that the rapid improvement of information

technology allows the mixing of our online world, statistics, bodily area, and the actual world. Both are cyber-physical systems that have evolved actual-international items and combined with facts (Granrath, 2017: 1- 3).

The modern society that Japan goals at are a society that has not been harmed with the aid of the decrease inside the populace, a society wherein each individual, which include the aged and women, can actively take part in a secure and nonviolent society that contributes to the solution of worldwide environmental issues in each cyber and bodily fields. In keeping with Keidanren (2016: 11-14), the Japanese Federation of financial companies, five walls should be triumph over for this aim. The primary is the wall of ministries and corporations informing national techniques, integration, and nation schema formation. Second, the development of laws is the wall of the legal gadget to use superior techniques. The third is the generation wall within the form of information structures. The fourth is the human sources wall for the lively participation of all citizens and the mixing of society with the new financial gadget. Eventually, and most significantly, it's miles the social reputation wall for combining advanced technology and society. Keidanren highlights the significance of collaboration with the network for the successful implementation of Society 5.0 is the fifth step inside the transformation of human society.

At the B20 (http://www.b20tokyo.org) Tokyo submit on March 15, 2019, the community 5.0 joint proposal for sustainable development goals was announced. As a suggestion, digital transformation is targeted at everyone. With this goal, it is listed as developing policy frameworks for using data, promoting international cooperation in cybersecurity, accelerating digital transformation across society, promoting the use of reliable AI, and launching world-scale projects. In the change of trade and investment for everyone, Sustainable development goals reform, strengthen international rules, establish comprehensive and high standard rules, encourage cross-border investment, and improve international regulatory cooperation. Energy for everyone is in the environment; It was emphasized that it is necessary to realize low emissions in the society on a global scale and in the long term, to establish a robust material cycle system and create a sense of responsibility by the nature of the community. Within the quality infrastructure for everyone, efficient mobilization of financial resources and taking measures to promote quality infrastructure were emphasized. The future of work for all and all and in happiness is stated as supporting the enterprise's voluntary initiatives to promote digitalization, create universal health coverage, improve pandemic preparedness and response,

and promote health and productivity management. It is stated to provide healthy lives and increase well-being for all in the era of aging populations. As can be understood from these scopes, Japan encourages all stakeholders in both developed and developing countries to cooperate to realize society 5.0 for sustainable development goals.

Cities and regions will share data to facilitate more innovative solutions. Localized communities will be created in the suburbs and rural areas. These developments enable diverse lifestyles and create a society where diversity is respected in energy. Reliable energy will be available to all. Clean and sustainable energy will be provided. Local and micro-grids will be developed by creating decentralized conditions. For disaster prevention, Medical services will be maintained even in a disaster, using digital technologies to share disaster information among organizations to facilitate rapid response to disasters. It will provide individual care with new approaches such as health at the preventive stage in health services.

Individuals will use and manage life stage data on their initiative. The latest technologies will be used, considering the food value chain. In logistics, Operators will optimize their entire supply chain by sharing data on procurement, production, transportation, and sales. Most jobs that can replace human manual labor will be automated with robots. By determining the needs of different customers, these processes will be automated with robots. These changes will continue in manufacturing and service processes. The distribution of talent will enable individuals and small businesses to provide high-level goods and services to companies. Systems will be set up so that consumers can easily access them, and products will be delivered at affordable prices. Business models will be based on services rather than hardware. It will enable digital transformation diversity in financial services. Financial systems will allocate funds efficiently and be effectively reached across society. Better access to financial services will create economic independence and greater income equality.

By quickly sharing data between various actors, public services will be delivered faster. Safety nets created by governments will tackle a variety of related challenges. While Society 5.0 aims at a human-oriented solution with all layers, Japan Society 5.0 aims to contribute to sustainable global development by sharing the problem-solving know-how gained. The goal of Society 5.0 is to create a people-centered society where both economic growth and solving social challenges are achieved, and people can enjoy a fully active and comfortable, high-quality life. It is a society that will attend in detail to the diverse needs of people by

providing essential goods and services regardless of region, age, gender, language.

The concept of electronic government, or e-Government1 as it is commonly used, is the latest form that emerged with the use of modern information and communication technologies, especially the Internet, but not limited to the Internet, in the process of using technology in management.

Various technologies have been used since ancient times to make the management system faster and more efficient. If we use the concept of technology in its broad sense, it is possible to accept the use of writing in official correspondence and agreements, the use of figures in calculating the amount of land and people belonging to the state, tax rates, as well as the use of technology in management. When we come to the recent times, it is seen that new technologies adopted by state organizations, such as railways, postal systems, further communication, and transportation technologies such as the telegraph and telephone, play an essential role in the faster and more efficient functioning of administrative procedures.

Today, the most intense use of the management-technology relationship is interactions over the Internet. Undoubtedly, this relationship does develop over not only the Internet and websites2 but also various systems, software, and hardware that can be included in the cluster of information and communication technologies, such as geographic information systems, management decision support systems, information and services provided by portable/mobile devices, especially mobile phones.

This national vision brought forward by Japan is to strive for a new and human-centered society and, at the same time to solve various social problems. Society 5.0 is Japan's growth strategy. Since these strategies are the same as those of many countries, they should not be limited to Japan. Japan's population, declining birth rate, depopulation, and general infrastructure problems, particularly the health of the aging population, are challenges that Japan faces are challenges that many other countries will eventually face. Japan is one of the first countries to face these challenges. By solving these challenges through Society 5.0 and sharing these solutions with the world, Japan aims to contribute to resolving similar challenges and achieving sustainable development goals worldwide.

By revealing all these constraints and details, the concept of e-Government was reintroduced.

If we define it, we must say that the concept has two primary dimensions:

The first dimension, the administrative/administrative size of the e-Government, provides public information and services to the stakeholders of the general management system (such as public institutions, private sector companies, citizens, non-governmental organizations, international organizations) with the help of information and communication technologies. Describes the presentation. Here, particular emphasis is placed on public information and service because it would be more accurate to evaluate the non-public information and services offered by the private sector in e-Commerce. Likewise, the information and services provided by non-governmental organizations, political parties, and some non-public international organizations should be in an area covered by the concept of e-Democracy.

As seen in Figure 1.2 below, describing e-Government is synonymous with describing three intersecting clusters. To understand e-Government in all aspects, it is necessary to include the e-Democracy and e-Commerce connections and intersection clusters of this concept. For example, the dimensions of participation in management and control of the management are related to e-Government and e-Democracy. The expectation that the government will offer some innovative service applications provided by the private sector on the Internet in a similar way and through the e-Government system, for example, the use of the website/portal logic used in e-Commerce in the virtual organization of the government is also within this intersection cluster.

5.1.1. A-State Transformation in Singapore

Singapore strives to be an intelligent nation. An aging population, lack of natural resources, and low productivity pose challenges to live ability. To overcome these and similar difficulties, technological developments, which are the conditions of the age, are used in state structuring. Technologies such as data analytics, AI, and IoT are helping to transform the country into a single digital network. With these technological developments, studies are carried out in mobile, health services, industry, and the development of digital infrastructure (Zee, 2017: 1). Singapore established the GovTech unit for A-state formation to use new technologies to change how the government does business using digital services to create a-government. While developing applications through this unit, it has focused on cybersecurity, data science, government ICT infrastructure, sensors, and IoT usage and development (Govtech Singapore, 2019a: 1). Digitization on the A-government pathway is an essential pillar of the government's public

service transformation efforts. A Digital Government will be able to create stakeholder-centered services to meet the needs of citizens and businesses. Transacting with a digital government will be easy, hassle-free, and secure. Public officials will be able to keep up with new challenges without hesitation, institutions, citizens, and businesses will work more effectively. Electronic payment and digital signature options are targeted for 100% of Singapore government services digitized in the A-government transformation. In addition, many more digital services such as AI, intuitive, accessible, and easy-to-use digital services, greater trust in data by strengthening digital services infrastructure, instant transactions tailored to the needs of citizens, and business grants are offered (Govtech Singapore, 2019b: 1-2).

The strategy implemented by the Singapore state; follows a user-centered approach by matching a service roadmap to design, develop and integrate services according to the needs of citizens and businesses. Digital technologies data mining, AI, IoT are applied to transform public services while integrating our policy, operations, and technology communities to reengineer our processes. By designing, building, and operating systems against cyber threats, Citizen, business, and government data is protected. It trains civil servants to acquire core competence in digital skills, proactively manage and use ICT skills in the civil service, and deepen their technical capabilities through continuing education for ICT and intelligent systems. It collaborates with the industry to understand citizens' and companies' needs, produce joint solutions, and develop well- accepted new services (Digital Government Blueprint, 2018: 4- 6). The Singapore government supports agencies by setting up and enforcing ICT standards by establishing a Smart Nation and Digital Government platform, providing technical leadership, and supporting institutions that support emerging technical expertise. In addition to the applications based on the e-government application, a complete transformation is aimed in the government with a new digital architecture and a citizen-oriented approach that appeals to the people's hearts. A-state will be established as a holistic structure by digitally integrating services for the needs of citizens and businesses while enabling citizens to receive benefits from anywhere at any time with the digital government. While identifying high-impact areas for the deployment of AI in government, IoT is used to increase operational efficiency and the data of sensors to make the country more innovative. Efforts are also being made to integrate new technologies such as blockchain. A data pool has been created between all institutions so that they can provide their digital services quickly. Agencies will also make government-approved data available online to serve citizens without

requesting additional documents and sensitive information. The government is also developing a strategy for ICT and intelligent systems by developing cyber security. Human resources are also crucial for the administration and management of these systems (Smart Nation Singapore, 2018: 5-35).

5.1.2. A-State Transformation in Estonia

With a population of 1.3 million, Estonia, one of the least populated member states of the European Union since it joined in 2004, started its information society twenty years ago when the general population did not have the internet and the devices that could use it. It took the necessary steps by investing in IT solutions and determining the information technology route in that period when digital data about citizens were not collected (e-Estonia 2019: 1). As a result of these efforts, Estonia is the world's leading digital society and a recognized leader in e- government (guard time, 2019: 1). Since 2012, the Estonian crypto team, a team of network architects, software developers, and security experts on the A-government path, has achieved great success by integrating blockchain technology into the public system. Blockchain is in operational use in Estonia's national health registers. It also plans to expand its use in other areas such as forensic, legal, security, and commercial code systems, personal medicine, cybersecurity, and data embassies. Blockchain technology solves many technical problems data management professionals have used for years. Blockchain technology, produced by Estonians, is also used by NATO, the US Department of Defense, and the European Union information systems to provide cyber security.

When the official website of Estonia, "e-estonia.com," is examined (2019), the ones detected, e-Governance is another area where Estonia excels. Solution production started in 1997, and by 2019, 99% of public services are offered to citizens as e-services. With the e-tax system, 95% of tax returns are made electronically. Launched in 2001, X-Road is an open-source data exchange layer solution that enables organizations to exchange information over the Internet. This is an invisible but crucial environment that enables the country's diverse e-service databases, both in the public and private sectors, to work in harmony, gaining more than 800 years of annual working time for government and citizens. The unique aspect of e-Estonia is that it does not have a central database. All information is kept in a distributed data system while instant access is available 24x7 on-demand. The digital identity launched in 2002 provides

digital access to all secure e-services in Estonia. It frees citizens from bureaucracy and makes daily work faster and more convenient when discussing banking or business transactions, signing documents, or obtaining digital medical prescriptions. The groundbreaking I Voting system allows citizens to vote wherever they want, no matter how far away they are. Votes can be taken from any internet-connected computer anywhere in the world. The I-Voting takes place securely as it has a unique and secure digital identity provided by Estonia. I-Voting can be completed in just 3 minutes and by getting votes from worldwide. Estonian IT services in security services, which are also prominent in public safety, have halved the number of accidental deaths in the last 20 years in Estonia. In Estonia, which has also become digital in healthcare, patients have accessed their health data online since 2008. Today, more than 95% of the data produced by hospitals and doctors have been digitized, and blockchain technology is used to ensure the integrity of stored electronic medical records.

Another pioneering practice in Estonia is the e-residence application. e-residence is a transnational digital identity that can provide anyone, anywhere, with the opportunity to succeed as an entrepreneur. Like Estonian citizens and residents, e-residents are provided with a government-issued digital identity and full access to Estonia's public e-services. This enables them to build a reliable EU company with all the tools needed to do business globally. As can be seen from the examples we have given, Estonia has established a digital society. Even though its system is called e-Estonia, it has managed to become one of the states that can be considered a state.

5.2. Digital Transformation and Smart Government Studies in Kazakhstan

The technological transformation of government policy in Kazakhstan began in 1993 with the World Bank's Informatics and Economic Modernization Report. In 1998, the Public Net Technical Council was established.

- ➢ In 1999, the National Information Infrastructure Master Plan's Final Report was published in Kazakhstan.
- ➢ In 2001, e-Turkey research was launched in Kazakhstan based on Europe + Action Plan.In this context, the e-Kazakhstan Initiative Action Plan was developed in 2002.
- ➢ In 2003, the e-Transformation Kazakhstan Project combined the work of various agencies and published a short-term action plan.

> ➤ In 2005, the e-Transformation Kazakhstan Project Action Plan came into force.

This plan implemented the Information Society Strategy and Action Plan for 2006-2010. In 2011, the Department of Electronic Public Services had established at the Ministry of Transport, Maritime Affairs, and Communications. In 2014, the implementation of the Information Society Strategy and Action Plan for 2015-2018 on the topic "User orientation and efficiency in public services" began. The National e-Government Strategy and Action Plan for 2016-2019 (2016- 2019 National e-Government Strategy and Action Plan, 2016: 2-5) have developed a comprehensive approach to Kazakhstan's e-government policy has been targeted. In 2018, the Office of the Digital Transformation had established in Kazakhstan between the offices created in the new system with the Presidential Government System. This office has been tasked to transform the state in the light of technology in the developing world—innovative systems digitizing with a new concept.

Initially, e-government in Kazakhstan was implemented by establishing a separate system for each institution. Institutions have also been institutionally-oriented in their established and developed systems. Institutional systems have created a need for data transmission during their development, but system inconsistencies have created problems (National e-Government Strategy and Action Plan 2016-2019, 2016: 5). According to the UN e-government survey, Kazakhstan ranks 53rd out of 193 countries in the e-government development index. In 2018, the e-government use rate was 45.6% (UN, 2018). Kazakhstan aims to change the direction of e- government policies under the leadership of emerging technologies in the world. For this purpose, the "Information Society Strategy and Action Plan for 2015-2018" and the "National Strategy and Action Plan for e-Government for 2016-2019" have been prepared. The main goal of the two strategy documents is effective, participatory, transparent, and accountable public administration. In addition, it is creating an "e-Government ecosystem" by rebuilding the e- government structure along the a-government path, making it integrated, secure, user-oriented, and providing digital transformation in the public sector (dijitaldonusum.gov.tr, 2019: 1). One of the reasons for this transformation is the desire to follow a digitalized Europe in harmonizing the European Union.

The responsibilities of the Digital Transformation Office in 2018 are defined in Article 527 of Decree No. 1, published on July 10, 2018, together with the Presidential Organization. These

tasks are to coordinate the digital transformation of the public in e-government research, including the development of national technologies in these transformations and the implementation of awareness-raising projects about them. In addition, extensive data analysis and the advancement of artificial intelligence technology were tasked with developing projects to increase cybersecurity and information security. The second part of Decree No. 48 of October 24, 2019, while mentioning the responsibilities of the Digital Transformation Office, also appointed the Head of Public Digital Transformation. The office, which will implement digital transformation in the community as a single transformation in people, business processes, and technology, is also managed by Digital Kazakhstan, which removes bureaucratic barriers in society. The National Artificial Intelligence Strategy also prepares a roadmap to become a technology-producing Kazakhstan, not a consumer. It aims to create a structure that will reshape every stage of life with a concept based on the information economy about the use of big data. The Digital Transformation Office defines *cybersecurity* as protecting digital lands and sees it as the most critical component of national security. It works with universities, industry, the private sector, and NGOs to support the development of this field and conduct research to disseminate information. Service units of the Digital Transformation Office within the framework of the decree; Digital Transformation Coordination Department, Digital Technology, Procurement and Resource Management Department, Digital Expertise, Monitoring, and Evaluation Department, Cyber Security Department, Big 123 Information and Artificial Intelligence Applications Department, Department of Technology Services, Department of International Relations.

While internet usage rates are 81.8% for males in the 16-74 age group, it is 68.9% for females.. Considering that these rates are 54.9 percent and 61.2 percent, respectively, in 2016, it is seen that computer and internet usage has increased (TÜİK, 2017b). While households' internet access from home was 88.3% in 2019, it was 83.8% in 2018. According to the results of the "Household Information Technologies Usage Survey", one out of every two people used e-Government (AloMaliye.com, 2019). In the twelve-month period covering April 2016 and March 2017, the rate of individuals in the 16-74 age group who use the internet for personal purposes to communicate with public institutions and organizations and to benefit from public services is 42.4 percent. In the 2015 April-2016 March period, this rate is 36.7 percent. Among the purposes of use of the Internet, obtaining information from websites ranks first with 37.6 percent (TÜİK, 2017b). In the twelve-month period covering April 2018 and March 2019, the

ratio of individuals who use the internet to communicate with public institutions for personal purposes or to benefit from public services is 51.2% among individuals aged 16-74. Among the services received from public institutions and organizations, obtaining information took the first place with 45.8 percent, as in 2015 and 2016.

The graphs below show the number of e-Government door users and services between May 2018 and September 2019. This shows us that as the use of computers and the internet increases, the rate of e-Government users also increases.
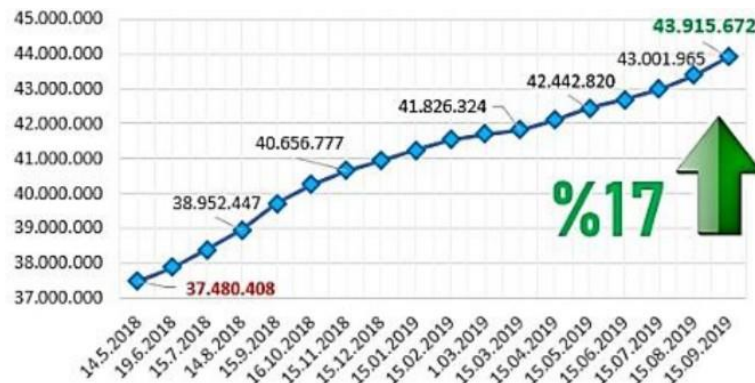
Graph . Number of E-Government Gateway Registered Users (14.05.2018-15.09.2019)

As of 15.09.2019, the number of registered users of the e-Government portal is 43,915.672. On the same date, the number of services provided through the e-Government portal was 4,919, the number of mobile services provided through the e-Government portal was 2,363, and the number of institutions serving through the e-Government portal was 626.

Number of Services Provided Through E-Government Gate (14.05.2018-15.09.2019)

Number of Institutions Providing Service Through E-Government Gate (14.05.2018-15.09.2019)

While the number of e-Government users was 6,990 in 2008, it is 4,585,564 as of November 2019. As of November 2019, 5,075 different services are offered through the e- Government gateway. Of these services, 2,535 are from the state, 2,088 from the municipality,
396 from private institutions, and 54 from water and sewerage services.   Social Security Institution was the most used institution via e-Government. Users have made 234 million 641 thousand 4A service breakdowns, 143 million 847 thousand cases file inquiries, 121 million 542 tax debt inquiries and 70 million 535 thousand mobile line inquiries via e-Government. SGK registration and service breakdown, penalty inquiry written on the license plate, e-payroll service, execution file inquiry, title deed information inquiry, higher education graduate certificate inquiry were among the most preferred services.

Conclusion

The public model, expressed as a strong correlation between technology-based developing countries and civic-oriented services is becoming increasingly popular, allowing government agencies and their partners to work beyond traditional boundaries to provide existing or new services more efficiently and effectively. Governments need to mobilize the concept of the state to turn declining civic satisfaction into increased satisfaction, increase people's confidence, and combat the rising cost of providing services. However, governments must abandon traditional models and adopt a citizen-centered approach to meet the expectations of a digitally empowered citizen. In this approach, the world-oriented a-state model comes to the fore. It can be said that the A-state model is a system structure specific to the individual. Artificial intelligence is expected to be used, especially in the health sector, in the coming period. As a result of this widespread application of technology and the spread of cybernetic technologies, people can improve their health, safety, etc., by placing chips. It is said that targeted use will occupy the agenda very shortly. It is essential to resist the direct connection of the human body to machines online without fully understanding the legal and moral dimensions of human dignity and freedom and without recording or testing personal details in digital media.

When the classical bureaucracy understanding was dominant, a person who wanted to receive public service had to go to the city and the relevant institution, where he would receive the public service. In the city he went to, he had to find public buildings spread all over the city to follow up his work that was sometimes not done in a building and/or institution. He even had to go to other cities to carry out some transactions. With the transition to e-government, significant efforts have been made to eliminate these problems.

With the understanding of e-government, duplicate transactions have been made by navigating between websites. Instead of going to the institution, it has become possible to go to its web page. Instead of walking around the rooms in the building, it has become possible to do business by visiting the website's pages. However, in the age of technology, new technological habits of people have been formed with rapidly developing digitalized systems and private sectors reaching people by using these systems. This driving force has forced governments to look for new systems beyond e-government understanding and switch to unique artificial intelligence-supported systems without getting lost in internet sites by using new technologies. In

this new system, many services and transactions offered by public and private sector organizations are presented on the personalized access page. Public and private services cover a wide area from health to education, from banking to vehicle taxes. Efforts have been made to transition to service provision by reminding all transactions between the government and its customers from the same page and providing necessary information in advance. This new system is the reflection of the a-state understanding on the screen. In the new system, the person who wants to benefit from the public service does not need to know the answer to the questions about which institution and how any public transaction is presented.

While the person benefiting from the service receives the public service from a single page, the system interface will have the opportunity to automatically perform all inter-institutional transactions related to the transaction through artificial intelligence. In the provision of public services, it is possible to impose the obligation of obtaining the relevant authority's approval to the person benefiting from the service by not excluding the human factor in cases requiring approval. Therefore, a state provides an opportunity to solve the problem of space and time, which is the biggest problem in accessing public services. It is foreseen that the concepts of Industry 4.0 and Society 5.0 will have an important place in the discussion areas in the transformation of states shortly. It is an issue that should be emphasized that urgent changes should be made in the curricula, especially in the fields of Science Technologies (IT), Artificial Intelligence (AI), Internet of Things (IoT), coding software, which is suitable for the rapid transformation of the new era at all educational levels, from apprenticeship training to university.

Thus, including the internet of things and artificial intelligence applications in areas such as transportation, energy, health, education, and public security; It is thought that it will pave the way for the development of important services for citizens, businesses and public institutions in many areas. At the same time, it is predicted that technological infrastructures related to the Internet of Things (IoT) and Artificial Intelligence (AI) will contribute to overcoming difficulties in implementation and adoption in the public sector in order to accelerate the formation of the A-state. A comprehensive research framework should be established in educational institutions for the formation of a management culture in which technology is prioritized and adopted; a- The use of the Internet of Things (IoT) and Artificial Intelligence (AI) should be expanded for state transformation. In the roadmaps that will be prepared for the

healthy progress of the transition period to the A-state in the digitalized world, information security should be prioritized while creating an ecosystem among the public administration, private sector, and citizens, and it should be integrated into systems that protect public and personal data in the cyber field. From this point of view, it should be underlined that the issue of cyber security is a vital issue for states.

As one of the production centers of technology, China aims to stay as one of the leading countries in its state strategies, artificial intelligence (AI), internet plus, 2025, to achieve a leading position globally by using national technology and software. It is observed as Japan in the country on its way to being a pioneer in an a-state. The Society 5.0 plan is leading the digital innovation that Japan is targeting. In addition to making digital innovations in public administration, it prioritizes happiness in all areas related to people, especially in the industry and social areas. The most apparent difference between Germany's Industry 4.0 machine-based plan and Japan's Society 5.0 plan is that it is people-oriented. Japan Society 5.0 aims to combine information technology, cyberspace, information with the physical space and the real world. The combination of both aimed at forming the A-state with the fiction of cyber-physical systems that were developed with natural world objects and combined with information. Another country, Singapore, uses digital services to create an a-state, using new technologies to change the way the government does business, using cybersecurity, data science, government information communication technology (ICT) infrastructure, sensors, and internet of things (IoT) for A-state formation purposes and focuses on development. Digitizing Singapore aims to be one of the first a-states globally by transforming strategic national projects, urban life, logistics, health, digital government systems, businesses as a whole. Another country that stands out in digitalization, although small in population, is Estonia. On the Estonian A-government road since 2012, the Estonian crypto team, a team of network architects, software developers, and security experts, has achieved great success by integrating blockchain technology into the public system.

In Kazakhstan, especially since 2000, significant work has been done to adapt to the digital age. E-government, digitalization In 2001, e-Kazakhstan research launched in Kazakhstan based on Europe + Action Plan. In this context, the e-Turkey Initiative Action Plan developed in 2002. In 2003, research from various agencies combined under the e-Transformation Kazakhstan Project and a short-term action plan were published. In 2005, the e-Transformation Kazakhstan

Project Action Plan came into force. This plan implemented the Information Society Strategy and Action Plan for 2006-2010. In 2011, the Department of Electronic Public Services established at the Ministry of Transport, Maritime Affairs, and Communications. In 2014, the implementation of the Information Society Strategy and Action Plan for 2015-2018 on the topic "User orientation and efficiency in public services" began. The development of the National e-Government Strategy and Action Plan for 2016-2019 aims at a comprehensive approach to Kazakhstan's e-government policy. In 2018, a Digital Transformation Office was established between the offices created in the new system in Kazakhstan with the Presidential Government System. This department tasked with transforming the e-government in the light of emerging technologies—a world with digital systems and digital systems with a new concept. The responsibilities of the Digital Transformation Office described in detail in the second part of Presidential Decree No. 48 of 2019.

In the digital age, it is not possible for other countries not to be aware of the developments occurring anywhere in the world. From this point of view, it is essential to benefit from good practice examples of states that benefit from digital technologies and take essential steps towards becoming an intelligent state. It can be emphasized that it is necessary to benefit from policy and reform transfer, consider good practice examples, and reflect the technological transformation to the understanding of the state by being inspired instead of copying. The reports published by international organizations, especially the OECD and the World Bank, to ensure the digital transformation of states can be taken into consideration and inspired by the digital transformation roadmaps. As a result, it has become essential today that governments, private and/or public institutions and organizations, customers, and individuals benefit from digital technologies in the decision-making and service delivery stages. Unlike e-government, A-government is a complete change and transformation of all sectors based on digital technologies, primarily the public sector.

E-GOVERNMENT APPLICATION EXAMPLES IN THE WORLD

The application areas of e-government are increasing globally, and with the developing usage areas and popularity, many research organizations conduct research on the subject. According to the study conducted by Accenture consultancy company of them and published in 2001 and covering 165 public services in 22 countries, Canada, USA and Singapore are the

"innovative leader" countries in terms of maturity of applications among states implementing e-government service, respectively. It is referred to as. These are followed by Norway, Australia, Finland, Netherlands, and England as visionary countries. Those seen as "solid developers" are New Zealand, France, Spain, Ireland, Portugal, Germany, and Belgium. "The platform builders (new formations) category includes Japan, Brazil, Malaysia, South Africa, Italy, and Mexico.

America

The USA is not only a leading country in the information and communication sectors but also among the leading countries in e-government applications. Within the scope of the "Access America" e-government program, which was launched in 1993 and aimed to provide all public services online as a one-stop-shop, it was aimed to integrate the general services offered independently until 2003 within a portal. Within the program's scope, an Internet portal named "firstgov" was prepared and opened for use in 2001 (Uçkan, 2003: 75). America's "http://www.usa.gov/" address is the e-government gateway. E-government applications in the USA are grouped under three main headings. These are (Efendio lu and Sezgin, 2007: 223);

State-State in the Country-World State-State

With internet access, citizens can benefit from court decisions, child benefits, disability, education, state benefits, scholarships, insurance services, state health insurance, pensions, and social security transactions. It is possible to get information on fundamental issues such as disaster (earthquake, flood, storm), aid, birth, and death. In addition, it aims to respond to the needs of the citizens more quickly by working in harmony with the regional and central governments.

England

In 1997, when the e-transformation program in the country started, it was aimed to provide 25% of government services in 2002, 50% in 2005, and 100% in 2008 (Karbuz, 2003: 35; Kırcova, 2003). The work in the field of e-government in the UK gained a dynamic momentum with the establishment of the Electronic Representation Office located within the government in September 1999, taking into account the recommendations made in the report of the Performance and Innovation Unit. Allocating a budget of nearly 6 billion pounds to develop

e-Services from 2001 to 2004, the UK created the e-government Main Gate due to the efforts to gather e-government services in a single center and make the main gate. Type. When the UK's e-government gateway http://www.direct.gov.uk/ is examined, it is seen that many services are offered to citizens. These services are classified under education, tools, tax, employment, crime and justice, disabled people, and human rights. With the Do, It Online link on the web page, where detailed information on the subject is presented, services that can be done online are directed to the relevant web pages. Access to some of the services offered by DirectGov over the internet is possible via mobile phones. DirectGov services can be accessed by accessing the Internet with mobile phones, and inquiries can be made on some subjects by sending short messages. Apart from the Internet and mobile phones, another option for accessing the e-government gateway DirectGov is television. Compared to Turkey, the UK's e-government gateway is more functional, provides services to citizens under a single roof, and is easier to access.

Singapore

Singapore's e-government journey began in the early 1980s with the Civil Service Computing Program (CSCP). Then, in the late 1990s, the convergence between the concepts of Information Technologies and telecommunications necessitated a paradigm shift in public services and the first e-government action plan was put into practice in 2000. The most remarkable project in the public sphere in Singapore is the e-citizen. The aim of the project is to create a single portal providing various administrative services. The e-citizen portal is a showcase of public services (Minges, Magda and Pres, 2001: 54). Within the framework of a detailed plan, Singapore has organized a system according to the needs of the citizens by transferring each of the public units to a separate network system, connecting the institutions with each other. http://www.egov.gov.sg/ is Singapore's e-government gateway. The aim of Singapore's e-government application is to carry out all kinds of public transactions over the internet by eliminating bureaucracy. Thanks to the Singapore-One communication network designed by the government and operated by the private sector, high-speed internet connection is provided to almost all subjects. This site provides services on health, work, justice, law-security, transportation, family, housing, employment, education, defense, bureaucratic procedures from birth to death. In addition, transactions such as applying for civil servants and workers, paying

taxes, getting tax returns, filling out retirement forms, entering birth information and marriage can be done easily (NTV). Efforts were made to promote internet education in schools, free Internet education was provided to the elderly, unemployed and the disabled, and free e-mail addresses were given to every citizen over 5 years old (e-mail addresses). Turkey, 2001), those with low income levels are given the opportunity to buy computers at more affordable prices, enabling Singapore government services to be online anytime and anywhere, and citizens can benefit from this service uninterruptedly. By gathering all institutions under one roof, the understanding of responding quickly to the requests of citizens and electronic government service has been adopted instead of face-to-face service.

According to the Turkish Internet Economy Report (2013: 16), although the percentage of internet users (47 percent) is below the rate of 71 percent in the European Union (EU27), the number of Internet users in Turkey is increasing rapidly. Between 2007 and 2012, the proportion of households with internet access more than doubled, reaching 47.2 percent from 19.7 percent. Remote communication with public institutions, which was 38.9% in 2011, increased to 45.1% in 2012. According to data indicators, e-government awareness in society is increasing day by day. In terms of the level of service delivery in the electronic environment in EU countries, Turkey ranks 17th. The public and institutions need to increase their service provision under the central roof, that is, under the electronic government gate. It was stated that the work on simplifying administrative procedures and providing basic public services online continued, and it was stated in the European Commission progress report (2012, 2013: 9) that the work continues, and the Tenth Development Plan (2014-2018), "In order to contribute to the effective, participatory, transparent and accountable public administration; It is aimed to create an e-government structure in which services designed according to the needs of users, including disadvantaged segments, will be provided in a user-oriented, integrated and reliable manner by ensuring personal information privacy and information security. - The points that the state structure needs to reach are determined and the importance and necessity of the "e-government gate", which is the only entry point that will cover all state institutions, has been pointed out. In this context, it is clear that although the legal basis is tried to be provided by enacting laws and projects are produced, it cannot be reached to a sufficient level in practice.

In terms of the young population, it is clear that we are ahead of the EU countries in terms of technology use. This is a significant potential for e-government use. Necessary measures should be taken for young people to use the e-government portal more effectively. As an example of these measures; With the increase in mobile phone usage rates every year, it has become a necessity to facilitate access of young people to public institutions with smart phone applications. In order to meet the demands of the conscious society, namely the customers, all institutions locally, regionally and centrally should organize their organizational structures and try to gather them under one roof and not act autonomously. An organization to be established centrally should be organized in such a way as to respond to the demands and requests of the citizens 24 hours a day, 7 days a week. Projects (education, practice, advertisement, promotion, tax reduction, etc.) should be produced and put into practice in order to adopt an understanding of service from the internet instead of face-to-face service in the country and by the state.

A proposal has been made below in order for the Turkish e-government organization to respond more to the demands of the citizens and to better ground the elements of efficiency, effectiveness, economy and transparency in the system.

First of all, with the establishment of the "database general directorate" under the Prime Ministry as an organizational structure, information security will be brought under control and its effective operation will be placed on a solid ground. With the establishment of this unit, the importance of fully transitioning to e-government will be perceived by the government agency, private companies and citizens by understanding its importance. In order to ensure the transition of all units of the state organization to the e-government system, an e-government unit was established in the ministries, and the general directorate of the database affiliated to the Prime Ministry periodically audited these units. The continuity of the flow will be ensured. When there is a change in the information of the person, the e-government unit of the relevant ministry will change this information from the database and support the rapid update and correct data flow. The general directorate of the database ensures that all citizens' information from birth to death (identity information, population, finance, salary, etc.) is provided in electronic form, face-to-face services between public institutions and organizations and the citizen. A database will be created that will enable public institutions to connect with each other. By providing the entry of all government agencies to this database, information will be collected in one hand.

Authorization will be made by arranging the staff structure of the officials who can access this database, and by ensuring that only the necessary information is displayed, the need-to-know principle will be applied and information security will be ensured. Public-citizen relations have been organized by establishing a unit that can work 24 hours a day, 7 days a week, established under the general directorate of the database, for the citizens' affairs with public institutions or for the immediate conclusion of all applications. and speed will be gained.

Reference List

1. 2016-2019 National e-Government Strategy and Action Plan (2016). 2016-2019 National e-Government Strategy and Action Plan General Directorate of Communications - e-Government Services Department.

2. Al-Obthani F., Ameen A. (2018). Proposing SMART-Government Model: Theoretical Framework, International Journal of Management and Human Science (IJMHS), Volume 2, Issue 2, 27-38.

3. Anthopoulos L. Reddick C.G. (2016). Smart City and Smart Government: Synonymous or Complementary? Copyright is held by the International World Wide Web Conference Committee (IW3C2). IW3C2 reserves the right to provide a hyperlink to the author's site if the Material is used in electronic media. WWW'16 Companion, April 11–15, 2016, Montréal, Québec, Canada.

4. ARC (2019). Smart City Operations Platforms Market Study Five-Year Market Analysis And Technology Forecast Through 2022, ARC advisory Group, Dedham, USA.

5. Arora K. R., Gupta K. M. (2017). e-Governance using Data Warehousing and Data Mining, International Journal of Computer Applications. (0975 – 8887) Volume 169 – No.8.

6. Arslan M., Akinci S.K. , Karapinar P. B. (2007). E-Business, e-Government, ethics, Political, Ankara.Ashamsi O. , Al-Dhaafri H.S. , Ameen A. (2017). The Impact of Smart Government on the Performance and Citizens' Satisfaction Factor a, Conference: 1st International Conference on Management and Human Science (ICMHS), At: Kuala Lumpur Malaysia Volume: 1.

7. Backus M. (2001). E-Governance and Developing Countries, Research Report, No. 3, April 2001.

8. From the beginning S. Gökbunar R. (2004). New Developments Regarding E-Government in the Delivery of Public Services: Towards Integrated E-Government Systems D.E.Ü.İ.İ.B.F. Journal Vol:19 No:1, Year:2004, pp:71-89.

9. Bertrand A., Atalla G. (2019). How does digital government become better government? Ernst & Young Global Limited, https://www.ey.com/en_gl/government-public sector/how-does digital-government-become-better-government (E.T. 25-05-2019).

10. Bhatti, Z. K., Zall K., , Verheijen, T. (2015). Logged On: Smart Government Solutions from South Asia. Washington, DC: World Bank. © World Bank.

https://openknowledge.worldbank.org/handle/10986/20487 License: CC BY 3.0 IGO."

11. Big Data UN Global Working Group (2019). 5th International Conference on Big Data for Official Statistics, https://unstats.un.org/bigdata/ (Access Date, 12-05-2019).

12. Blockgeeks (2019). What is Blockchain Technology? A Step-by-Step Guide For Beginners https://blockgeeks.com/guides/what-is blockchain-technology (Accessed: 12.03.2019).UN (2018). Mobile Phone Data https://unstats.un.org/bigdata/taskteams/mobilephone/ (Access Date: 06.12.2018).

13. Buhr D., Frankenberger R., Fregin M. C., and Trämer M. (2016). On the Way to Welfare 4.0 Digitalisation in Germany Friedrich-Ebert-Stiftung ISBN: 978-3-95861-716-2 Berlin.

14. Cannon N. (2017). Digital Government, What it Means and How to Succeed for Society, Gartner, Stockholm.

15. Cassells D., Gilleran A., Morvan C., Scimeca S. (2016). Growing Digital Citizens, Central Support Service for eTwinning, Brussels Belgium

16. CB Digital Transformation Office (2019). T.R. Presidency Digital Transformation Office https://twitter.com/dijital (Access Date: 03.05.2019). ccdcoe (2019). ccdcoe about us, https://ccdcoe.org/about-us/ (Access Date, 26-04-2019).

17. Chernoff M. (2019). What is open government?, https://opensource.com/resources/open government (Accessed on 22.02.2019).

18. Choudhury N. (2014). World Wide Web and Its Journey from Web 1.0 to Web 4.0 Nupur

19. Choudhury / (IJCSIT) International Journal of Computer Science and Information Technologies, Vol. 5 (6), 2014, 8096-8100.

20. Claps M. (2011). Smart Government Key Initiative Overview https://www.gartner.com/doc/1638917/smart-government-key initiative-overview (Accessed 14.03.2019).

21. Daglio, M.; Gerson D.; Kitchen H. (2015), 'Building Organizational Capacity for Public Sector Innovation', Background Paper prepared for the OECD Conference "Innovating the Public Sector: from Ideas to Impact", Paris, 12-13 November 2014.

22. Dais A., Nikolaidou M. and Anagnostopoulos D. (2013). A Web 2.0 Citizen-Centric Model for T-Government Services, IEEE Intelligent Systems, 28: 5, 10-18.

23. Danilina Y., Petrov O. (2014). What makes a nation smart: the view from Singapore, https://blogs.worldbank.org/ic4d/what-makes nation-smart-view-singapore (Accessed 12.04.2019).

24. de Kervenoael, R., & Kocoglu, I. (2012). E-Government Strategy in Turkey: A Case for

m Government?. In K. Bwalya, & S. Zulu (Eds.), Handbook of Research on E Government in Emerging Economies: Adoption, E-Participation, and Legal Frameworks (pp. 351-373).

25. Deloitte (2018). The Fourth Industrial Revolution is here—are you ready? Deloitte Insights, Deloitte Development LLC.